The Builder.

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*Recent Travels in Asia Minor.**

IT the present moment public attention is directed towards that long-neglected country which is evidently destined to become the road to our Indian possessions. Whether it be true or not that the Ottoman Government has granted a concession to a French company to carry a line of railway throughout the length of Asiatic Turkey, which is eventually to be extended to Bagdad, and so on to the frontier of India, it is certain that such a line will be made, and that probably before many years have elapsed. The plains of Asia Minor have already been invaded by two conquerors greater than Sesostris and Alexander,—since they carry civilisation in their train;—steam and electricity have already commenced their inroads on that vast continent; telegraphic wires already traverse the highlands, cross the mountain ridges, and dip into the ocean in remote bays on its coasts, while the shrill whistle of the locomotive already rouses the eagle from his eyrie on Mount Sipylus, and startles the cranes and pelicans on the borders of the Cayster and Mœander. Where there are railroads, civilisation must follow; and though at present this country presents the strange anomaly of possessing no roads but iron roads, and though the trains frequently pass close to the haunts of brigands who live in defiance of the Government, yet all this apparently chaotic state of affairs will be set right at last, and probably this naturally prolific country will be at some future time colonised and cultivated by settlers from the West.

We speak advisedly when we use the term "much neglected" with reference to it; for, notwithstanding the fact that it was the theatre of some of the most important events in the history of the early world, and the stage on which strutted the imperial puppets Sesostris, Cyrus, Crœsus, Xerxes, Alexander; though the finest temples of antiquity graced its soil; and though it has formed a theme for historians and poets from the time of Homer, about as much is known of the interior of the country as of that of the Great Sahara. The travellers who have traversed the continent, and left any record of their journeys, may be easily enumerated, as they probably do not amount to more than a dozen. Paul Lucas, Leake, Texier, Hamilton, Fellowes, and Ainsworth, are, indeed, all whose names occur to us. With the coasts, however, we are better acquainted, as Le Brun, Pococke, Chandler, and Arundel have described them, and the Budrum expedition and the various missions of the Dilettanti Society have made us in some measure acquainted with their ruined cities and temples; but about the interior we have but little information. Therefore the works of all the "pioneers" have an especial interest for us at this period of awakening interest in the future prospects of Turkey; and for that reason we welcome with pleasure Dr. Van Lennep's volumes, containing an account of a journey from Samsoon, on the Black Sea, to Smyrna, and of several excursions to the right and left of the main route made for the purpose of visiting ancient sites. Dr. Van Lennep having resided thirty years in the country as a missionary, and being acquainted with the various languages spoken by its inhabitants, being thoroughly versed in the manners and customs of the people, and having also a taste for antiquarian pursuits, was, as may be suppose, well qualified to give us an accurate description of everything he saw during this interesting journey of five months through some parts of the country but little known, and through others entirely unknown. Leaving Samsoon in April, 1864, he visited Amasia, the capital of the kings of Pontus, then proceeded to the important town of Tocat, from which point he made excursions to Sivas and the Star Mountain, and afterwards started on his journey across the continent, going by way of Yuzgat, from which point he visited the interesting ruins of Pterium and Euyuk; thence to Angora, the ancient Ancyra, Sevri-Hissar, and the ruins of Pessinus, Afion-Kara Hissar, Ooshak, Sardis, and so on to Smyrna.

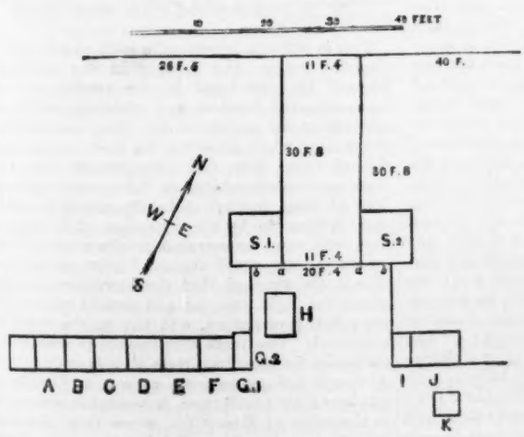
On referring to the map of Asia Minor it will be seen that he thus passed through almost the entire length of Asia Minor, and through the most important parts of Pontus, Galatia, Bithynia, and Phrygia, provinces in which there are many ancient sites still to be identified.

To architects and antiquaries the most attractive portion of his book will be that in which he throws light upon one of the most obscure pages in the history of art,—the art of what Professor Donaldson has aptly termed "Anterior Asia," to which are due the sculptures of Pterium and Euyuk, the tombs of Midas and other Phrygian kings, many of the monuments of Lycia, and all those remains which present no sign of Greek, but many marks of Asiatic, Phœnician, Assyrian, or even Egyptian influences. We all know that certain discoveries have of late years shown that some of the early sculptures in Asia Minor, such as those of the Sacred Way at Branchidæ and the tombs at Urgub, exhibit an imitation of Egyptian forms; and that Phœnician origin may be attributed to the grotesque animals on the architrave and frieze of Assos. We can also trace Egyptian taste in the sarcophagi of the kings of Sidon which are in the Louvre; but in no place is there to be seen such a combination of Egyptian details and Assyrian plan, as in the palace of Euyuk, which Dr. Van Lennep has been the first thoroughly to describe and illustrate. We see here two gigantic sphinxes,—creatures of Egyptian origin rarely to be met with in Asia Minor,—guarding the entrance and supporting pilasters, exactly supplying the place of the winged bulls in the palaces of Nineveh; on either side are large blocks of granite or basalt, with processions of figures carved on them, forming the basement of two wings, which probably supported colonnades, as in Mr. Fergusson's restoration of Persepolitan architecture.* We are enabled to reproduce a plan of the best-preserved portions of the building. The sphinxes are marked on the plan S. 1 and S. 2.

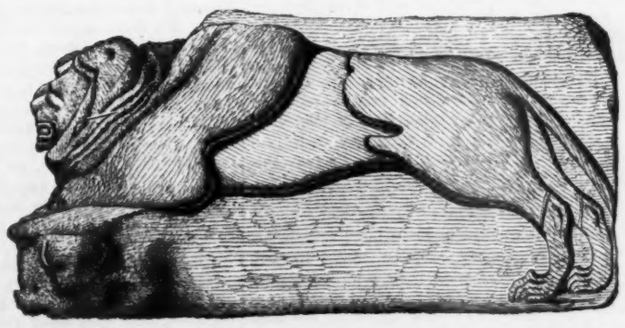
Beyond the sphinxes was apparently the principal corridor of the palace; but everything beyond that has disappeared. A striking proof of the Egyptian origin of these buildings exists in the fact that the god Apis occurs twice in the series of carvings. Hamilton visited the ruin, but describes the sphinxes as enormous birds. Both here and at Pterium Dr. Van Lennep made careful drawings and measurements, which tend to illustrate thoroughly these important remains The rock carvings at Pterium are well rendered, and show a thoroughly Assyrian character. They occupy the sides of a gorge, which appears to have formed the entrance to a regal sepulchre. The carved surface extends for a length of 124 ft., the figures varying in height from 2 ft. 10 in. to 4 ft. 10 in. Dr. Van Lennep confirms M. Texier's opinion that these

* See p. 306.

* "Travels in little known Parts of Asia Minor, with Illustrations of Biblical Literature and Researches in Archæology." By Rev. Henry J. Van Lennep, D.D., thirty years Missionary in Turkey. London: John Murray, Albemarle-street. 1870.



Plan of Temple at Euyuk.



Side View of Carving on Block K.

processional rows of figures, which represent the meeting of a king and a queen, each attended by a long train of attendants, signify the introduction of the worship of Astarte, the Syrian Venus Urania, into Phrygia. We refer those who feel interested in the question to the book itself, in which the subject is fairly put before the reader, and thoroughly illustrated.

Amongst the carved blocks of the Palace of Euyuk, is one which bears the figure of a lion devouring a ram, or more probably a bull. Of this, which is marked K on the plan, we give a representation. This mysterious emblem, which has never been satisfactorily explained, is frequently met with on the early monuments of Asia, and seems to us to have been imported from Phœnicia, since the earliest example of it we know is to be found on the coins of one of the kings of Sidon. Amongst other places it is to be found on the rock tombs of Lycia. Dr. Van Lennep gives an engraving of another from Amyra, and Mr. Pullan dug up a similar group near Claros and Colophon (see Texier and Pullan's Cities of Asia Minor).

At Angora our traveller visited the ruins of the Temple of Augustus. We do not agree with him in the supposition that the yellow tint observable on the marble there and at the Parthenon arises from the fact that the surface has been gilt; but we think that it has been toned down by a coating of yellow encaustic preparatory to the application of the reds and blues by which the mouldings were relieved, and the friezes heightened, in all buildings that were polychromatised.

By far the most interesting chapter in the book is that in which Dr. Van Lennep sets at rest the vexed question relating to the figure carved on the face of Mount Sipylus. High up on that part of the mountain which overlooks the town of Magnesia and the valley of the Hermias there is to be seen a niche, 35 ft. high, in which is a rudely-carved head with the bust of a female figure. All former travellers have in rotation repeated that this figure represents Cybele, the mother of the gods; but Dr. Van Lennep satisfactorily proves it to be that of Niobe. He remarks that though the features are obliterated, the figure has been so arranged that when it rains, two streams of water fall upon the breasts, and so trickle to the ground, as perfectly to represent the flow of tears, and that these streams have in the course of centuries left a bluish deposit on the surface of the rock, which is visible from the plain below, in the form of two dark streaks down the bust and the pedestal on which it stands. This, he says, with justice, must be the "stony Niobe, all tears," described by Homer when he thus sang:—

"Upon arid Sipylus, upon the rocks of the desert mountain . . . . Niobe, though turned to stone, still broods over the sorrows the gods have sent upon her." And by Ovid with still greater precision:—

"She weeps still, and, borne by the hurricane of a mighty wind,
She is swept to her home. There, fastened to the cliff of the mount,
She weeps, and the marble sheds tears even now."
Ovid, Met. ii. 310.

Again, Pausanias, who visited it, says:—"When standing close to it, the rock and precipice do not show to the beholder the form of a woman weeping or otherwise; but if you stand farther, you think you see a woman weeping and sad." ("Attica," l. i. 21, 5.)

Another coincidence in support of M. Van Lennep's view exists in the fact that the figure is on the mountain of Sipylus,—the son of Niobe; and not far from the lake of Tantalus,—the father of Niobe. Our author, however, starts the theory that the figure may have existed from the earliest times, and may have been intended originally to represent Cybele, but that the myth of Niobe may have been derived from it. His explanation of this view is so very ingenious that we give it in full:—"Certainly, the whole scene around us at this moment agrees remarkably with the Grecian legend, and may be looked upon as the very birthplace of the myth of Niobe. She is the daughter of Tantalus over whose head, remember, the rock was always hanging ready to fall. Tantalus is nothing else than a rock hanging poised in the air (*ταλαντεύω*), ever threatening to come down, an exact description of the constant disintegration of the face of the hills in this region. Niobe, in her deep-cut alcove under the over-hanging rock, is the 'daughter of Tantalus.' She is as Cybele, the great mother—her very boast; and her children struck down to earth, 'slain by Phœbus and Diana,' are the masses of rock, such as we have just passed over, that fall into the valley, separated from the cliffs by the action of the sun and rain. 'They lie unburied on the plain,' Homer tells us, 'till on the tenth day after, the heavenly gods bury them;' the fallen rocks break up under the influence of the weather. Here, in these mountains of Sipylus are the couches 'of the divine nymphs that dance or stream about Acheloüs;' that is, in this hill now above us are the springs from which flow down the streams that feed the Acheloüs at our feet;—Acheloüs, 'the son of Sol,' springing, that is, from the melting of the snows in summer. . . . . Carved in the most remote antiquity to represent, it may be, Cybele, the deity of a race that preceded the Greek immigration, the circumstances that gathered round it gave rise in the minds of the imaginative Greeks to the whole beautiful legend of Niobe, all stone and all tears, as we see her at this moment, and we here look upon a monument that was even to Homer an object of venerable and unknown antiquity, a monument antecedent not only to history, but in some sense to mythology itself."

FREEMASONRY.*

A German writer not long ago completed a history of Freemasonry, from, of course, a German point of view, which met with considerable approval in his Fatherland. It was translated into English, and mentioned in our pages at the time. A second edition of the English version has now appeared.

Wide, generous, and pleasant, with its cornfields and vineyards, universities and meerschaums, traditions of free cities and great guilds, Germany is the very site for the luxuriant growth of an embracing, expansive, brotherhood, like that of the Freemasons; but it is not of the German lodges, so much as of the society generally, that we are minutely informed in this work. In various parts of Europe and America there are, at the present day, about 9,000 lodges, with 70 grand lodges, to which they are subordinate, forming invisible connecting lines of fellowship over this vast surface, having for asserted aim the exaltation of mankind in morals. The histories of these lodges in modern times are doubtless of interest, if only for the record of well-known names among the members, such as Elias Ashmole in an English lodge, Thomas Boswell, of Auchinlech, in a Scottish one; Daniel O'Connell in an Irish one; and Benjamin Franklin in a Pennsylvanian lodge; but it is the ancient history of Freemasonry properly spoken of now as its legends and superstitions, that will have most attraction for non-masonic readers.

The legend that every one is supposed to know runs to the effect that the four children of Lamach, and his two wives, Ada and Sella, founded the beginning of all the sciences in the world. The eldest son, Jabal, pursued the science of geometry, and abandoned his flocks and herds to build with stones and trees; his brother Jubal founded the science of music; his brother Tubal Cain founded smithcraft in all metals; and his sister founded the craft of weaving. Having a foreknowledge of the punishment about to fall upon mankind, they engraved their sciences on two stones, so that they might not be lost when the "vengeance for synn" came. One of these stones was of marble, in the belief that it would not burn if fire consumed all else upon the face of the earth; the other was "clepped laterns," supposed not to be able to drown or sink in any water, if a flood should be the means of destruction. After the deluge, the great-grandson of Noah found one of these stones, and saw the science written on it, and taught it to other people. "And at the making of the Tower of Babylon there was masonrye first made much of." Nimrod was a mason as well as hunter, it seems, and fond of his science, or, as we should now say, trade. And when the city of Nineveh and other cities in the East were to be built, he sent his cousin, the king of Nineveh, threescore of masons to assist him. We quote the legend:—"And when he sent them forth, he gave them a charge on this manner. That they should be true each of them to other, and that they should love truly together, and that they should serve their lord truly for their pay; soe that the master may have worshipp, and that long to him. And other moe charges he gave them. And this was the first tyme that ever mason had any charge of his science." From this little band of masons, bound together as strangers in a strange land, possessed of the knowledge of a craft that was beyond the understanding of the dwellers in tents, according to this story, came Freemasonry.

So far this legend, with its patriarchal belongings, and surroundings, and discrepancies, its clink of pre-historic tools, on pre-Noachian tablets, and sight of Tyrian shipmen, and scent of cedarn forests.

German sympathies favour the supposition that Freemasonry really arose from the confederation of the Strasbourg stonemasons employed in building the cathedral. All that has been said in favour of this view is urged over again, lucidly; beginning with the first suggestion of the possibility made by the Abbé Grandidier in 1778; though nothing is left unsaid that could be given in explanation of the statement made by some writers that the confederacy commenced at the building of Magdebourg Cathedral in 876. The claims of the eleventh century are also gone into. After the panic that the world was coming to an end subsided, building operations were carried on with great energy and new life, and these drew masons together into long and close intercourse:—

"The erection of these edifices united masons, especially stonemasons, together in large numbers. As they were so long engaged upon the same building, the workmen were brought into very close contact; while the practice of the same art, their uniting to carry out the same design, and the combination of their artistic faculties, united them still more, and was the cause that gradually arose from their body the fraternity of German stonemasons."

A symbolic language gradually took shape, formed of figures and ciphers, in which was framed a guide to the practice of the art. Every mason had to learn this; and no apprentice was admitted into the brotherhood who was not of sufficient capacity to be able to do so. "Mathematical axioms and geometrical figures, garnished with mystical hints, Biblical allusions and interpretations, whence the Gothic proportions were derived, and upon which they were based, with the rules prevalent in the Gothic style, formed the innermost and secret aim of the whole design."

A prominent place is given to the history of Freemasonry in England. The author says there is scarcely a doubt but that a considerable proportion of the builders of our larger edifices of the fourteenth century were Germans, and that the architects of that time were German masons; and the names of Schaw, Swalwe, Lote, Ambler, Bald, Beyst, Brekeling, Derlyng, Evers, Felter, and Fubrig, are brought forward as evidence. The English masons soon followed their example in forming themselves into associations whose members recognised each other by signs, held meetings and acted in concert.

"Meetings were held regularly wherever buildings were in the course of erection. Their lodges were opened at sunrise, the master taking his station in the east, and the brethren forming a half-circle round him. After prayer, each craftsman had his daily work pointed out to him and received his instructions. At sunset they again assembled after labour, prayer was offered, and their wages paid to them. In stormy weather the craft assembled in a convent hall, or some other sheltered place; but in fair weather their meetings (lodges) were held in the open air, generally on the top of a hill, where no one could listen to their proceedings."

This is difficult to reconcile with the frequent disputes among the masons in the reign of Edward III., disclosed in the records of the corporation of London, and detailed in these columns in our notice of Mr. Riley's memorials of London; which disputes the lord mayor considered arose from the circumstance that the masons were not subject to "the government of folks of their trade;" and endeavoured to settle their differences by the reception of a deputation, who were empowered to draw up articles by which they would abide. Unless, indeed, we take it for granted that the stonehewers with whom the light masons and setters quarrelled were not Freemasons, and the others were, or *vice versâ*. The term Free-mason is met with, curiously, for the first time in this reign, 1350. Although self-government appears to have been put into their hands then, it was taken out again in the reign of Henry VI., when they were forbidden to assemble. Coming down to post-reformation times, and the introduction of the Renaissance by Inigo Jones, we are told the old symbols lost their work. "Instead of the buttress,

* "The History of Freemasonry, from its Origin down to the present Day." By J. G. Findel. Revised and Preface written by D. Murray Lyon. London: Asher & Co., 13, Bedford-street, Covent Garden. 1869.

plain walls with pilasters were seen; instead of the pyramids ambitiously rising towards heaven, a drooping Italian cowl was set upon the top of the little fragile tower; the tall slender pillars, which supported the arched roof of the church disappeared, and ornaments of tasteless scrolls supplied their place. Thus did German art, so honoured and revered, sink to the tomb, the Fraternity on this account undergoing a mighty revolution." It is supposed that the institution would have sunk into oblivion at this time, if it had not been for the circumstance that persons who were not operatives began to enter it as members. Hitherto only masons, stone-cutters, and carpenters were Freemasons, unless we may count the ecclesiastical and secular patrons of the craft as such; but after this time, persons of different occupations, and others following none at all, were admitted as members. It was in the year 1600 that Bozzy's ancestor was chosen warden of St. Mary's Lodge, Edinburgh. In 1641, Robert Moray, quartermaster-general of the Scottish army, was made a master-mason; in 1646, Elias Ashmole was made a mason at Warrington, Lancashire; and in 1670, the earls of Cassillis and Eglinton were received as Apprentices at Kilwinning. By degrees, practical knowledge was superseded by the pursuit of truth, freedom, and virtue, as the bond of union. The operative masons handed down their traditions and charges to a mixed brotherhood of various ranks and creeds bent upon developing their fund of intellectual capacity and moral rectitude. Innovations crept in, "high degrees," or "high grades," grand-masters, the grand orient, and other elaborations upon the three degrees of old, apprentice, fellow-crafts, and masters, which introduced dissensions in different countries, and which are all related by Mr. Findel. The ever-extending brotherhood occasionally spread into the orbits of other societies, such as the Rosicrusians and Illuminati, only, however, to retreat again within its own boundaries. And although each country has its own traditions, and its own grand lodges, they have the same aim of universal peace and goodwill. Nevertheless, Freemasons find it as difficult to overcome their prejudices as ordinary mortals. We read that the American brothers could not get over their deeply-seated sense of the inferiority of coloured men; for when the coloured lodge of Boston applied to the grand lodge of Massachusetts for a constitution, at the close of the last century, it met with a refusal.

Among the documents appended is the form of an examination of a German "Steinmetz,"—stonemason. We pick out a few questions for extract:—

Warden.—How do we recognise a mason?
Stranger.—By his honesty.
Warden.—Where was the worshipful craft of masons in Germany first instituted?
Stranger.—At the Cathedral of Magdeburg, 876.
Warden.—What was the name of the first mason?
Stranger.—Anton Hieronymus, and the working tool was invented by Walkan. (Perhaps corruptions of Adon-hiram and Tubal Cain.)
Warden.—How many words has a mason?
Stranger.—Seven.
Warden.—What are they?
Stranger.—God bless all honesty, God bless all honourable wisdom, God bless the worshipful craft, God bless the worshipful master, God bless the worshipful warden, God bless the worshipful society, God bless all honourable promotion here, and all places on sea or land.
Warden.—What dost thou carry under thy tongue?
Stranger.—A praiseworthy Truth.

Freemasonry has come to the front lately in two distant parts of Europe. It was the Masonic lodges of Madrid that conducted the funeral of Don Enrique de Bourbon a few days ago; filling the chamber of death with Masonic symbols, and placing on the coffin, with the dead prince's sword and sash, more Masonic emblems; and sending 600 fellow Masons as mourners to his grave. Again, though the fraternity takes no part in political or ecclesiastical contests generally, the Grand Lodge at Baireuth has now broken this transcendental silence, and issued a circular directing attention to the proceedings of the Œcumenical Council, vindicating the right of the society to exist in spite of ecclesiastical opposition, and calling upon members to perform the moral duties with zeal and exactitude, and uphold the freedom of science and of conscience. The adhesion of H.R.H. the Prince of Wales has given Masonry a fresh spurt in England. At the recent dinner in aid of the Boys' School, at which the Prince presided, more than £10,000 was subscribed. If modern Masons are not otherwise practical, they certainly are so in charity. Attention thus drawn to the subject, many will, doubtless, like to get some particulars of this remarkable organisation, now numbering about 600,000 members; and to these we commend Mr. Findel's book as containing much of the information they require. It is freer from nonsense and error than other attempts of the kind, but the real history of Masonry has yet to be written.

BRIGHTON, AND ITS POSSIBLE FUTURE.

To write something new about Brighton is a task not easily accomplished. "The Queen of Watering Places," as some are pleased to designate it, has been often described. Artists by the score have sketched the picturesque of its inland boundaries and outer beach; tourists have traversed its every nook and cranny, and where the guide-book compiler failed to find something worth describing, he invented a fancy scene to fill up the hiatus. Our notes in Brighton are of a current nature, and of another kind. They relate more to things that ought to exist, and to things that ought not, for the well-being of the town, and the cause of social reform and sanitary improvement.

In looking at Brighton to-day, we must, however, glance at it retrospectively as well as in the face, and judge how far, with all the acknowledged facilities it possesses, its public boards are doing their duty for improving its condition by adapting the obvious measure whereby towns are made beautiful and ornamental without ceasing to be prosperous and healthful.

Brighton is rapidly increasing in population, and of course in area. In fact, it is becoming a little London of fashion, a little sea-side metropolis of ease to the greater city capital by the Thames. But unlike the City and other large towns, Brighton is but the creature of circumstances, which cannot be said to be perpetual. The progress and the wealth,—yea, even the existence,—of the most favoured and fashionable watering-place, rest on an unstable foundation.

During the last fifty or eighty years towns in England that promised to occupy positions like Brighton, and actually did as a resort of fashion, or as an Elysium for invalids, have been deserted, and have consequently gone into neglect and decay. We have had inland watering-places, lake districts, and woody defiles in this country that have coaxed our fathers and grandfathers during their pleasure tour in holidays of old—places which not to have seen was considered to be the deprivation of the greatest enjoyment. Many of these favoured spots have faded, or are fading, out of sight. Notwithstanding railway communication, Bath of to-day is not the Bath when George III. was king. Nor is Tunbridge of the "Wells," Cheltenham of the "Springs," or Leamington of the "Spas," what these once were. Some of the once fashionable resorts, even on the majestic Thames, and on our midland and northern rivers, are dying or drooping. New seaside resorts are springing up daily, because fashion is capricious and exacting, and is always athirst for something fresh and new. But, exclaims the reader, what has all this digression to do with Brighton? That it is not irrelevant, perhaps we shall show before we conclude.

Brighton probably contains nearly 80,000 inhabitants, and this amount is supplemented in the visiting season by perhaps little short of two-thirds of the above number, who come as sightseers, visitors, or temporary inhabitants. This influx of humanity is accompanied with an increase of wealth and capital, and on this immigration Brighton, as a town, in a great measure, depends. Were the tide of fashion to veer round suddenly, we have no hesitation in saying Brighton, "the queen of watering-places," would collapse, with all its shining brilliancy, like a soap balloon. The simile, though not a graceful one, yet we venture to say, is tersely true. Brighton, in a word, is a lodging-letting and shop-keeping community. Its permanent inhabitants are a population of parasites, and the visitors are the plant it feeds upon. On this we take our stand for our survey, and from this standpoint we draw the attention of all Brightonians and Brighton reformers, corporate and auxiliary, to the question of how they can best improve the permanent well-being of their town. Of local trade and manufacture Brighton possesses little indeed, and, owing to the demand for house property, the building trades are its best representative crafts; but even the trades connected with the building interest are feeling the pinch of late in the town as well as those of London, and from similar causes. Too many flock there in season, as they do to the metropolis, in quest of labour, and the market gets overstocked. At the present moment and during the winter past there was much want and destitution in the town. The poor-house contained a good number of mechanics, and its board have been employing the surplus labour in the making of a new cemetery. We heard of two hundred hands being employed on this work, for which the pay amounted to about a shilling a day with a loaf or a loaf and a half, according to the number of the workman's family. The Corporation of Brighton have also been obliged to relieve the distress of the unemployed in the town by putting on hands at the beach, in the construction of a new roadway or promenade under the eastern cliff. A half loaf, it is truly said, is better than no bread, and it is a commendable thing to give even a little employment, that men may not starve in the midst of plenty.

There is work, however, in Brighton that requires execution and preference for the welfare of the town, even before that of constructing promenades or beautifying the approaches to the cliff. There are a number of new streets that either require to be opened or widened at right-angles to the King's-road, or beach; and the centre of the town requires to be better opened by a few wide leading thoroughfares. Breadth of opening and light and air exist on the surroundings of the Old Steyne and along the Grand Parade, but let one for a moment diverge from those open thoroughfares into the narrow defiles or lanes, dignified with the name of streets, on either side, and how stand the sanitary data. We shall not complain of the break-neck character of the streets, for their incline is unavoidable; we shall only note that many of them are painfully narrow and confined, and that their outlets are not what outlets ought to be in a much-visited town like Brighton.

The stability of some of the houses is an open question, but their back-yard accommodation and drainage is a sanitary question, though also an open one, and calls for closer attention and discussion. We do not deny that the Brightonians are making, and have recently made, some efforts towards an improved system of drainage; but why stop half-way? Bad drains and noisome smells must be stamped out, like the rinderpest, if health is ever to be thoroughly established, and guaranteed to poor and rich alike.

Some few ladies in Brighton, with excellent intentions, are stirring themselves in the matter of sanitary reform; and, with that discrimination that must be ceded to the sex whenever they sincerely strive to be humanely useful, they are acting on the principle that prevention is better than cure. But how far are they likely to be successful? To pay a few flying visits to one or two quarters of the town, with a few disinfectants corked up as if they were perfumes, and to distribute them to the poor as one would smelling salts? A mission of this sort will not accomplish much to kill the germinating seeds of disease.

Sanitary reform is a cause in which women can render much valuable assistance. Ladies with a little money to spare, and some leisure time on their hands, can be ministering angels to God's poor. They can aid in putting fire in the family grate, food in the cupboard for the little ones, and they can help the poor wife to tide over her illness. Their visits will also help to cheer the anxious, care-worn, and unemployed partner of her sorrows. A little relief and advice judiciously distributed in hard seasons works a wonderful amount of good. In whatever tends to make the poor man's home clean, healthy, cheerful, and neat, there a true and charitable woman's chief mission lies. But outside the threshold of the home man's real labour commences; and so with corporate bodies and public boards. They hold the public health more or less in their keeping. Their negligence of the common duties, or their ignorance of the simplest principles that govern health or prolong human life, may be the cause of sweeping hundreds of valuable lives to premature graves.

If those in authority in Brighton wish to improve the town, socially and morally, they must be more sanitary wise; and we would also recommend to their notice, now that houses are being run up in new quarters, that the breadth of roadway, and the outlet thereto, are of consequence. It would be hard to describe what figure Brighton represents. Built after no well-conceived design or plan, the town, as looked upon from an elevation, is a regular jumble of houses, up hill, and down hollow. Even in the

most fashionable quarters of Brighton all uniformity is eschewed, or unattended to.

> "The sea, the sea, the open sea,
> The blue, the fresh, the ever free,"—

this is the great attraction; and, in the face of the broad expanse of ocean, the non-uniformity of the broadways and buildings of Brighton is forgotten.

The architecture of Brighton is not of a very high character. On and leading off the King's-road and the Marine Parade, are squares and buildings, and crescents, presenting a very prepossessing appearance, large, lofty, and well lighted; but look where you will in Brighton, right or left, due east or west, north and south, you are confronted with plaster, plaster, eternal and unredeeming plaster. Perhaps it is more the result of misfortune than fault that Brighton has developed little or nothing of stone in its street architecture. The old brick fronts that still exist without plaster coating in the town, have a more warm and genial look, and they harmonise better with one's feelings than the sickly glaze of endless and monotonous plaster.

It is not our purpose to describe the public buildings of Brighton. Its Pavilion has been painted, and photographed, and caricatured, a thousand times, and is likely to undergo the same operation again and again. In origin it was the offspring of luxurious extravagance, and wanton and epicurean eccentricity. In design it was an anomaly, and it is so still; but the notions of both architect and king harmonised, as did also their taste in this respect. Whether we call it a pagoda or a pavilion it matters but little. Its onion-bodied cupolas or domes or its turnip-root minarets can neither add a grace to architecture nor warm into life one healthy idea of improved taste. It has outgrown its uses,—it is tabooed as a home for royalty; but though no longer the home of kings or regents, it contributes to the commonweal by affording useful accommodation to public institutions and public committees. In its new character, say we, let the Pagoda live so long as the public cause is served.

In speaking of the Pavilion, we may note that within its rooms the Brighton and Sussex Natural History Society have their quarters, and within the building also is the Brighton and Sussex Museum. There is a very good and varied collection of minerals and fossils here; petrefactions in stone and chalk, of fish, mollusca, and bird and animal remains—some indigenous to Sussex. The collection of stuffed birds is also pretty fair, and there are old coins, medals, and other varied castings, British and foreign.

The sanitary department is meagre and poor, and there are many things which find a local habitation here which ought to be at once ejected. There are several articles in the cases which have more the character of an advertisement for their donors and makers than that of sanitary samples of what good and bad articles are.

We are glad to see that the Brighton Society of Arts, which meets in one of the Pavilion wings, is giving facilities for the furtherance of the art-education of mechanics. The system they have adopted is capable of a wider extension, and of a more constant attention in its prosecution.

Brighton, which justly boasts of a splendid esplanade, can boast of no public park. How is this? While less noted places through the kingdom are providing parks for its people, Brighton rests on its oars at the beach. In England, Ireland, and Scotland, merchants and landlords, and members of Parliament, are moving in the good cause. Mr. Baxter gave Dundee a free park; and a few days since in Ballymena, Ireland, Sir Shafto Adair presented several acres for a free people's park. There is, indeed, a piece of private property with some villas around it which might have been secured for Brighton, but we hear it is at present down for building purposes. This park is called the Queen's Park, but there is nothing very queenly or graceful in the way in which its walks or paths are kept. Ground can be had for a public park in Brighton if its public board desire to move in the matter. Let the Brighton Corporation remember that open spaces mean health, and the health of a town bids fair for its permanent prosperity. It is considered by some that the construction of a harbour for shipping at Brighton or near it would be destructive to its visiting interest, and would have the effect of scaring visitors away, who would not care to come in contact on the esplanades with a rough sailor or sea-faring community. Perhaps there is some degree of truth in all this. Still, we believe that a little more shipping interest than what is comprised in a few fishing-smacks or coal-brigs below the town would be a benefit to the place. With the shipping interest come capital, wealth, and consequent industry and enterprise.

We now get back to our starting-point; and it is for the purpose of showing that if Brighton in the future is contented to depend upon her visitors, her people and inhabitants will find they rest upon a very unstable foundation,—a foundation that will give way in course of time. It may be soon, it may be remote; but the day is certain to come. The only way to secure Brighton against future failure in this respect is for her wealthy citizens, or her enterprising ones, to originate, establish, and develop some local permanent trade and manufacture as a mainstay in hard days, should they arrive.

Corporations or municipal institutions are local parliaments, and they should be utilised for the service of the inhabitants of the different towns where they exist.

We throw out these few hints with the best good wishes for the future prosperity of the town. Brighton has many good and useful institutions. It is highly favoured as a watering-place, and its hotels and churches and house property are increasing in number. Schools, colleges, hospitals, prisons, and workhouses, however, do not constitute all the grand practical or grand ideal of a prosperous town. Labour and employment, trade and manufacture, are required, and a good quota of a permanent working population; a fair share of growers and producers, and fewer reapers. Under the ægis of these things, towns must grow to wealth, stand firmly through occasional storms, and prosper, always independent of any adventitious aid. In conclusion, we wish to add that our observations on Brighton have a twofold character, and they are not alone intended for those whose interest is altogether wrapped up in the town, but for outsiders, here, there, and everywhere throughout the kingdom. If Brighton should be benefited, as we hope it may be, by these passing remarks, the local interest and the national one will be served together.

ARCHITECTURAL OUTLINE.

PURSUING this topic beyond the mere generalities of character of which we lately spoke,* as belonging to such an aspect of architectural design, the subject, if strictly viewed, opens out into several distinct and separately important branches of artistic study. Some of these will obviously come under such heads as the adaptation of outline to locality—its adaptation to purpose—to scale—to material.

The first-named of these relations,—of form to locality,—contains in itself many points which must very materially influence architectural design; since, putting out of sight for the time the other considerations of purpose, &c., a building, otherwise correct in character, may fail in effect through oversight in this respect alone. Among the first points for thought under this section of the subject must ever be those of urban or rural situation; these again dividing themselves under the specialities of wooded or open, hilly or flat country; and closed or spacious, high or low-built town sites. Without pretending to discuss fully all these distinctions, we may glance at some of them, as we deem they should weigh with one designing to satisfy them; and taking the first,—a wooded rural site,—how should this be dealt with by an architect desirous and capable of treating his work as an artist?

It may, we think, be taken as an axiom in our art that its productions should pronounce themselves as artificial by a measure of contrast with their surroundings of natural objects, while, however, harmonising, not clashing, with the latter.

The general forms projected against the sky by a mass of wood or forest are for the most part rounded and undulating; most compact and uniform in what may be considered as a *wooded* country, and more separated and grouped where the greater scale of its parts gives it the character of *forest*.

The masses of shadow and light in both will be broad, though varied, as perhaps in no description of scenery so much as in that which is wooded do the charms of richness and diversity combine so wonderfully with those of breadth and depth of effect.

Of all painters Claude Lorraine perhaps gives most evidence of entering into the full feeling of this class of scenery, which, even without the aid of very bold, mountainous, or rocky features, comprises in its broad masses, rich undulating outlines, and deep tone of colour, many of the elements of the truly grand in landscape; something perhaps analogous to the effect of a broad, rolling expanse of dark green sea, such as Claude himself depicted in some of his noblest works.

We remember, years ago, standing high above the middle reach of Windermere, with the woods of Calgarth, Storrs, and Rayrigg, on the eastern bank, and those above Belle Grange and the Ferry, to the west, bathed in the hazy glow of a summer afternoon, long before a steamer's paddle had disturbed the placid mirror of that fair water, or a railway-whistle been heard within many leagues of Bowness, and we call to mind the profound impression of a great artist's truth to nature which led us to remark to a no less interested companion how like it was to Claude, and how it proved the fidelity of his pictures to natural effect, and the power of that expanse of purple-green in his middle distances, which scarcely another painter besides has ventured so to dwell upon.

Few scenes in England can equal this for such an illustration; and let us ask what are the architectural accessories which would fitly unite their forms with those which give the outlines of the grades of near, middle, and further distance, in this instance blending into a picture of surpassing rural and sylvan beauty?

For one answer to our question we may turn to Claude Lorraine himself; for how could his pictures of such subjects produce the intense impression of unity and harmony of effect which emphatically attaches to them, unless the architectural objects which enter into his compositions were of the very kind best suited to combine in effect with their natural features?

These architectural accessories we find to be generally of a massive and simple form, mostly square in outline, though sometimes circular *on plan*, for the most part of castellated character, and, where not so, still having much of the solidity and simplicity which belong to such structures, as is the case with many of the Italian conventual buildings. The result is a style of form which contrasts agreeably with those prevailing in woodland scenery, and thus marking man's work where occurring among nature's, and at the same time a breadth of surface and of shadow harmonising with those of the masses of wood or forest through which the artificial forms break. To apply this to our immediate subject, we see how it points to the character which should mark, for instance, a church tower or lofty mansion in the midst of such scenery. Here all littleness of parts or fritter of detail would jar with the prevailing breadth of natural effect; and we may, not so infrequently as we might wish, prove this negatively by the mistaken styles sometimes adopted in such scenery for both ecclesiastical and secular buildings. It is often very difficult, we admit, for an architect to convince his clients of the value of plain design, even when they desire inexpensive buildings; there is a hankering after display, after a good show for the money spent, which stands in the way of simplicity of treatment; and we fear that it is sometimes too much the case that the designer, too, especially if young in practice, is tempted to show what he can do when a good opportunity offers, rather than to exercise that due reticence of hand which is often the very soul of art, in dealing with peculiar sites.

The want also of critical knowledge among those to whose lot it falls to make choice of an architect, or of a style, for some public building stands too often in the way of this discriminating exercise of our art. A case lately came within our knowledge where a most worthy clergyman about to build an additional church in his parish undertook to save the committee who acted with him any trouble in choosing an architect by visiting several of the churches lately built in his part of the country, and deciding on the point from what he should thus see. Without mentioning more than one of his comparisons, it is enough to say that he recommended for this church the architect of one which he greatly preferred to another in a parish near it, the first being a poor and weak, though over-laboured, imitation of one by the architect of the second, which was simple, massive, and impressive,—

* See p. 180, *ante*.

qualities eminently wanting in that preferred, and whose *outline*, in a very prominent position, fails utterly in respect of repose and dignity, or in harmony with the natural features of its site. Our friend's new church, it is but fair to say, promises much better than that which influenced his choice of an artist. Many an old country church tower comes to mind illustrating to memory the harmony, with contrast, which may exist between such scenery as we have been considering and well-adapted architecture, and not a few spires, but these all simple in their parts, and massive in their proportions even when moderate in scale; and such must ever be the qualities sought by an architect who would plant in such scenes a work of "art-building" undiscording with the *genius loci*.

Our reference to Claude applying thus chiefly to buildings in hilly or undulating wooded landscapes, we can scarcely leave this part of our subject without a word or two on such as are placed in *flat* woodland scenery. The general outline of the trees clothing a plain follows, of course, in a great degree that of the surface they spring from, and thus much less of variety and *vertical* form is found here in the natural features, and more scope is given for direct contrast with the nearly horizontal landscape skyline. Hence in such scenery forms more lofty and taper than in hilly landscape will produce appropriate effect; and it is in this kind of country that our English church spires prove most effective, and of an angle and proportion finer and sharper than would produce an equal impression among more varied natural features.

When, however, trees of the fir tribe (other than the Scotch and Italian varieties) prevail, such forms will lose their power, and the broad square tower prove much more conducive to picturesque effect.

Some of the latter, of extreme simplicity, but of good scale and grey with age, are among the most powerful accessories we know to this quiet but charming style of landscape; form, colour, and association all combining to give them value.

To pass from country to town, let us consider for a little what points as to outline should guide an architect in designing a lofty building for an urban site, spacious as to openings, but abounding in features of considerable height.

Experience shows that in town scenery, at least where the climate occasions much use of artificial heating, great irregularity and diversity of sky-line are sure to exist, and unfortunately often combined with much of weakness and inelegance, if not ugliness, of form; for rare indeed are the instances of really solid and artist-like design in chimneys, suggestive though such features be to an accomplished architect.

Contrast with this mixed outline, by carefully graduated and distinctly marked form, should be a primary aim in such circumstances: the breaks of line not frequent, but all decisive, and care being taken to avoid in the ornamental or sculptural accessories such shapes as might approach any prevalent type of form among the familiar and undignified vertical excrescences in the neighbourhood. Breadth fully proportioned to height should be aimed at in such a situation where, perhaps, from several points complete views of the whole height of the building could be obtained, a point of less importance, where, as in crowded localities among narrow streets, this can seldom be the case, and that part of the building rising above the general mass, alone likely to impress its outline strongly on the eye. Careful study of detail is also here imperative, as, while conducing to give the general character of form relieved against the background of sky, it is certain also to be often subject to close examination, the inclination always existing where a building of importance reveals itself fully from such a distance as affords a good general view, to approach it gradually till generality loses itself in detail. As regards the terminal forms of structures such and so placed as those now under consideration, it will be found that much of their success will depend on definiteness and decision of outline rather than on any high degree of elaboration in their parts, careful though, as above remarked, the study of those parts, however simple, must be. A well-considered combination of curved and straight lines, where the style admits of it, will generally surpass in effect any form composed wholly of straight lines, and this because in almost every case this will afford the best measured degree of contrast with the forms generally prevailing in such town sites as we are supposing. Where the style of architecture excludes any large application of curved lines, a massive squareness will generally prove most effective; and as illustrations of each of the above classes of form, we may instance as pre-eminent the cupola of St. Paul's, London, and the centre tower of York Minster. Of course, the grand scale of these examples removes them from the class of ordinary design; but the principles which they depend upon are common to all scales of building,—with this reservation, that with *diminution* of scale an *increased* proportional degree of terminal solidity should be sought, or the result may be that of flimsy weakness, such as was alluded to in a former paper on this subject, as marking some late tower designs in the provinces. At the same time a more finished—we do not say a more studied—style of detail should be adopted in the upper parts of the structure, thus by smallness of scale brought nearer to the eye.

One of the stateliest examples extant of simple form on a grand scale rising among town masses of ordinary buildings is presented by the tower of the church of St. Rembault, at Mechlin, most beautifully depicted by David Roberts for the illustrated edition of Lord Lytton's "Pilgrims of the Rhine," and also in Coney's well-known etchings. It is remarkable that this tower, like that of York Minster, and others of very imposing appearance, has the bases of pinnacles at the parapet without their shafts, giving the idea—whether correctly or not can scarcely now be known—of their having been intended, but omitted from the completed design with the apparent object of preserving squareness and simplicity of outline, which certainly in these examples produces a noble and powerful effect.

Of town spires, those seem most effective which, with considerable massiveness of proportion, have their decoration confined in a great measure to the point of junction with the tower, as is the case with St. Mary's, Oxford. One celebrated steeple, that of St. Nicholas, Newcastle-on-Tyne, has always appeared to us weak in its impression, save on the direct square elevation; its effect on the diagonal having to our eyes the defect we have before alluded to, of deficiency of mass in the lantern and spirelet as compared with the tower seen diagonally.

The great Somersetshire towers, as that of Taunton and others, as also the cognate example of Wrexham, present fine instances of appropriate urban features, and in most of them the bold treatment of their parapets and pinnacles is conducive both to loftiness of aspect and grace of terminal outline without weakness.

Wrexham Tower, though in some of its details late almost to debasement, is an especially fine example of bold proportion and massive design, and few towns in Great Britain can boast of a finer and more appropriate central object; the spire of a lately-built church, designed apparently for contrast, of a very fine angle, groups strikingly with the old tower in distant views of the town, but, on a nearer approach, especially when viewed in comparative isolation, seems too attenuated for dignity, and in its very marked simplicity in respect of detail lacks something of the force derived from clustering decorative features at the base of a spire, bringing it also somewhat more into harmony with, though not imitating, the varied and broken character of the general town skyline around it.

A critical comparison of various examples with a close scrutiny of the mental impressions they produce and their sources, fixed in the memory by careful sketching (an exercise which no number of photographs or engravings can supersede in value) will lead to much of knowledge and quick perception of what is appropriate or the contrary; and no less will such study convince of the fact we have before sought to impress, of the great scope for variety of treatment which exists for works in this class of design, notwithstanding the simplicity of the main elements entering into their composition.

Having touched, though slightly, on a few parts of our subject, such as seemed calculated to convey correct impressions of the principles of criticism involved, we may hereafter enter into a brief examination of some of the rather more detailed points of treatment affecting this important province of architectural design.

The Water-Colour Societies.—The Society of Painters in Water Colours and the Institute of Painters in Water Colours will both open their exhibitions to the public on Monday next; the private view taking place this Saturday.

THE ARCHITECT AT THE HOUSES OF PARLIAMENT.

The correspondence between the First Commissioner of Works and Mr. E. M. Barry "respecting his duties as architect of the New Palace of Westminster," as moved for by Mr. Cowper Temple, has been published. We print a portion of the architect's last letter, which led the First Commissioner to take legal opinion as to the right of the Crown to ask for all the contract plans and drawings of the Houses of Parliament:—

"I have ascertained that the professional custom of American architects in such cases agrees with our own, and that the rules of the American Institute of Architects declare that 'drawings, as instruments of service, are the property of the architect.' I have received numerous communications from architects and others to the same effect. I have also been informed by members of my family that they will feel aggrieved if I surrender that which they consider was left in my hands as a sacred trust, and the nature and tenor of all this which I have referred to, combined with my own feelings on the subject, place an insuperable barrier in the way of my handing over my inheritance to the First Commissioner of her Majesty's Works. I am, however, most anxious not to offer any impediment to his views, and I shall be happy to show all my drawings, &c., to the Director of Works, and to make tracings for his use of any of them of which he may require copies. For so doing I will make no professional charge, merely asking the First Commissioner to defray the actual and necessary cost of making such tracings or copies. Moreover, though I cannot admit the right of the First Commissioner to give me directions respecting my own property, I am willing to give to him, without any charge, originals or tracings of all drawings made in my own office, during my engagement, which have been signed as contract drawings, and referred to as such, and I sincerely trust that these proposals will put an end to a misunderstanding which I greatly regret, which I am not conscious of having done anything to bring about, and to the continuation of which I am anxious not to contribute."

The proposition seems most fair. There is an entire misunderstanding abroad as to architects' plans. Mr. Ayrton is reported to have said, as we mentioned last week,—"It was correct that certain architects had resolved that they were entitled to keep plans which they had prepared for other people who had paid for them." We have pointed out on many occasions, without reference, of course, to this case, that an architect is paid not for his drawings, but for producing a building. The drawings are his tools, his means for producing that result; and, whether numerous or few, whether made with ink on paper or with chalk on a deal board, do not regulate his charge. There is no more reason that the architect should give up his drawings to his employer at the close of the work than that the carpenter and mason should leave behind them their centres, templets, and drawing-boards, and it never is done. A plan of the drains or a section showing the flues may be and often is made for the owner, sometimes with and sometimes without extra charge; but as a principle the drawings belong to the architect, unless, indeed, there should be any special arrangements to modify that principle. We do not desire to see Mr. Barry commence a legal fight singlehanded with the Government, for whom law is cheap. The whole profession is concerned, and ought to make common cause to prevent the possible establishment of an unjust and injurious precedent. We sincerely hope, however, that the legal advisers of the department may take such a view of the question as may prevent what would certainly be a discreditable collision.

At a meeting of the Manchester Society of Architects, held on the 4th inst., it was resolved:—

"That the Manchester Society of Architects, being satisfied of the correctness of the views as to the ownership of architects' drawings set forth in the Rules as to professional practice drawn up by the Royal Institute of British Architects, desires to assure Mr. Barry that he will have their cordial support in resisting the demand of the First Commissioner of her Majesty's Works to deliver up to him the drawings prepared by his late father and himself, in their capacity of architects to the Houses of Parliament."

We understand that the Society also expressed their willingness to take up the suggestion made in our last, and join in a general subscription, to fight the question on public grounds.

Sir,—Having just read the correspondence between the First Commissioner of Works and Mr. Edward Barry, it appears to me a case of extreme hardship.

During an experience of thirty years and more on some of the largest buildings in England, I cannot call to mind a solitary instance of an architect surrendering his working drawings to his client; and to my mind it becomes imperative that such a demand, now made for the first time

should, in the interests of the profession, be resisted to the utmost.

To fight this question, which affects every architect in the kingdom, single-handed, against one of the most powerful Governments of modern times, would be a most unequal contest. Every associated body of architects should, therefore, be up and doing, and aid in furnishing the sinews of war by forming a defence fund, to which I, for one, would readily subscribe.

Let the Institute of British Architects at once appoint a treasurer, and there will be no lack of contributors to aid Mr. Barry in his defence.

A SURVEYOR.

METROPOLIS BUILDINGS AND MANAGEMENT BILL.

THE new "Bill to consolidate and amend the Building Acts relating to the metropolis; the Formation of Streets and of Sewers and Drains in the Metropolis [not very clearly expressed this, by the way], and for other purposes relating thereto," consists of 132 clauses, and 17 schedules, printed on 69 pages. It was brought in by Sir W. Tite, Mr. Bentinck, and Mr. Bowring, and is to come into operation, if so accepted, on the 30th of September next. The definition of a building not given in the present Act, stands thus:—

"'Building' includes every erection comprising a cubical space defined by walls, piers, posts, or other structures, and a roof or other covering, whether such erection is wholly enclosed or not, and whether it is fixed on permanent foundations or not, and of whatever materials it is constructed, and for whatever purpose it is used, or constructed, or adapted (but so that this interpretation be not construed so as to exclude from the application of the term building as used in this Act any erection that would have been determined to be a building according to the true construction of this Act if this interpretation had not been inserted in this Act."

The fees to be paid to district surveyors are not stated, but are to be the subject of bye-laws.

When a building has been taken down or destroyed to the extent of one half its cubical contents, the rebuilding is to be deemed as now the erecting of a new building, but the difference of opinion which prevails as to what constitutes its cubical contents is not dealt with.

By Clause 45,—

"A building in a street may, with the permission of the Board, given by them after considering any objection made by any of the owners of each adjoining building or ground, be brought forward to any extent, provided that no part thereof extends beyond a line drawn at an angle of forty-five degrees with the front wall or boundary of the adjoining building or ground; and the decision of the Board shall be final and binding on all parties and those claiming under them, as well in respect of easements of light and air as in all other respects."

As to public buildings, the Board takes much larger powers than heretofore. By clause 70,—

"A building shall not be used as a public building until the superintending architect has certified his approval thereof in relation to the matters referred to in the tenth schedule,"

These matters are:—

"1. Width of lobbies, corridors, passages, landings, and stairs.
2. Freedom thereof from inconvenient barriers, and steps of narrow tread or curve.
3. Construction thereof with fire-resisting materials, carried by supports of fire-resisting materials.
4. Strength and security of railings and balustrades.
5. Width of openings for doors for public entrance or access and egress, and method of opening same.
6. Means of ventilation.
7. Provision for water supply by constant pressure or otherwise.
8. Provision for extinction of fire."

By Clause 99, the district surveyor, if he find a building in an eminently dangerous state, is himself to cause it to be shored up and hoarded in.

115. By order of Council, one of the police magistrates may have the exclusive execution of the duties to be performed by a magistrate under this Act confided to him.

126. A builder who executes work not in conformity with the Act is not entitled to recover payment.

As to foundations, the present requirement, that "the footing of every wall shall rest on the solid ground or on concrete," remains, and is not sufficient for security. A thin layer of concrete meets the legal requirement, and if on loose or unequally solid ground, will not ensure stability.

Party fence-walls exceeding 7 ft. in height are brought under supervision.

Amongst the exemptions we find,—

"Greenhouses, plant-houses, orchard-houses, summer-houses, poultry-houses, and aviaries, used exclusively for such purposes, standing detached, and not less than 10 ft. from any other buildings, not being heated otherwise than with hot water, and the fire-places, if any, being detached, with no flues of any kind within the houses or buildings."

"Water-closets and privies not exceeding in area 25 ft., and not exceeding in height 7 ft. 6 in. measured from the level of the ground to the under side of the eaves or roof-plate, and built on separate foundations and external to the buildings to which they belong, and having no internal communication.

Buildings not exceeding in area 50 ft., and not exceeding in height 7 ft. 6 in. measured from the level of the ground to the under-side of the eaves or roof-plate, and distant at least 10 ft. from any other building, and from any street, and not having therein any stove, flue, fire-place, hot-air or hot-water pipe, or other apparatus for warming or ventilating the same."

These exemptions are very objectionable, and would fill the back yards of suburban districts with dangerous wooden structures.

We shall have opportunities to look further to the provisions of the new Bill.

The ugly coinage "storey," plural "storeys," is, we are sorry to see, adopted throughout the document.

THE LATE MR. PATERSON, OF NEW ZEALAND.

WE have to record the death in New Zealand of Mr. Thomas Paterson, C.E. He was the son of a Leith merchant, and was born about the year 1832. He received his education at the High School, Edinburgh. He was articled when young to Messrs. Grainger & Miller, in the railway branch of engineering, and at the dissolution of the partnership, Mr. Paterson remained with Mr. Miller, and finally became managing assistant to Messrs. Blyth, who succeeded to Messrs. Miller's business.

In 1863, the Otago Government required the services of an engineer, to whom they guaranteed a two years' engagement, and a salary of 1,000*l.*, with expenses out and home again. Mr. Paterson obtained the berth by his testimonials, without any competition. He went out by the Suez route, in 1863, and was first appointed as road engineer for the greater part of his engagement time. He carried out many important and successful works. He surveyed and prepared Parliamentary plans for the Dunedin and Clutha railway, and for the Southland government he supervised the completion of the Bluff and Invercargill railway. He also prepared specifications for the re-construction of the Oreti line. Mr. Paterson drew up some able and careful reports on the Lyttelton tunnel, and on railway works in general in the colony.

At the period of his death he was engaged in the preparation of plans for the Rangitata Bridge, and as late as November last he had written to the Gladstone Board of Works that he had completed his design, and to the effect that, if a special meeting were called, he was in readiness to submit his plans, and make arrangements for the prosecution of the work.

He met his death, along with others, by the upsetting of the Dunedin mail-coach, in the Kakanui river.

Mr. Paterson's loss is severely felt in the colony. He was considered to have no equal in his own peculiar line in New Zealand. The deceased gentleman was unmarried, and was not known to have any relatives in the colony. In business matters he was considered upright beyond suspicion, and he was generally respected by all who knew him, or had dealings with him professionally or otherwise.

MR. PAGE'S SCHEME FOR A CHANNEL TUNNEL.

MR. THOMAS PAGE, C.E., has read a paper to the Society of Arts on his plan for a submarine tunnel across the British Channel.

He proposes to sink, between Dover or the South Foreland and Cape Gris-nez (17¾ nautical miles), eight conical wrought iron shafts, the longest about the height of Westminster Abbey towers; these shafts to be two miles apart, and consisting of an inner and an outer casing, the space between to be filled in with concrete after they are sunk and fixed or imbedded, and embanked also round with concrete to a height of 30 ft. on a base of 45 ft. all round. A network of moored chain cables would also help to secure them. Lighthouses would be placed on the tops of these shafts, at a height of 180 ft. above low-water mark.

"The shafts being in place, the bed of the sea would be brought to a fair surface by the operation of divers, who would be enabled to work without pressure on their lungs or their bodies; but into the particulars of this system (said Mr. Page) I do not wish to enter, as it is a special arrangement for such purposes of operating in deep water.

The next operation is that of sinking and bedding on the bed of the Channel, the tubes or construction for the railway. These may be for a single line or a double line. I will refer to the double line at present, and then describe a tube, the joint of which is patented by Mr. Williams, of Liverpool, by means of which the tube, moving on circular joints, can take an elastic position, and all the junctions can be made above the surface of the water, while the remainder of the tube is bedded in the sea.

The space between the shafts being divided into lengths, say of a quarter of a mile each, and heavy iron frames fixed in the bed of the Channel by the divers, the lengths of tubular sections which I would propose to submerge at one time are ¼ mile, 1,320 ft., a little more than the length of Waterloo Bridge. Eight of these lengths being sunk, and covered, complete the distance of two miles, and if a sufficient power and a sufficient number of operators were provided to commence from each shaft, the whole between two shafts would be done in half the time; and it is equally certain also that nine times the power and operators would complete the whole distance between Dover and Cape Gris-nez in the same time as would be required for joining two shafts.

The gigantic nature of the work and the magnitude of its details require corresponding means of execution, both in the steamships and other vessels, for placing the shafts in position, and for embedding the lengths of tube in their proper places in the bed of the Channel, as well as for all the operations for filling the spaces between the outer and inner rings of the shafts with concrete, in forming the banks of concrete round the shafts, and in covering with concrete the submerged tubes immediately they are placed in position. It is by an excess of power and means, in steamships and other vessels, in operators, and in materials for forming concrete, that the progress and completion of the work can be accomplished with rapidity and economy. Thus to cover a length of tubular section a quarter of a mile long, in two hours of the tide, would require 1,500 men; to fill the space between the rings of each conical shaft would require 500 men for two hours' work; and to form the bank of concrete round each shaft would require 350 men for the same time.

The cost seems to have been estimated at 8,000,000*l.*; or rather Mr. Page's plan was devised on an understanding with Mr. Newman, of the firm of Freshfield & Newman, that if he could stake his professional reputation on a plan that could be completed for 8,000,000*l.*, there would be no difficulty in providing the funds for its execution.

In the discussion which followed the reading of the paper, opinions were expressed *pro* and *con.* as to the practicability of the scheme. Mr. Brassey was amongst the speakers. He said that so far as he had been able to understand the project, it was one of such a gigantic and exceptional character as he had never before heard propounded. No engineer had ever attempted anything of the kind, and he very much doubted whether it would succeed; his impression was that it would not. He did not think it was possible to sink the tube, as was proposed, to the depth of some 200 ft. by any means yet known; and to attempt to do a thing so gigantic without greater experience would be a very hazardous experiment, to say the least of it. He agreed with Mr. Bateman (who had previously spoken) that it was impossible for miners to work at a depth of 200 ft. Therefore, with no experience to guide them, he thought it was a bold matter to attempt to execute such a project, and no wise man would attempt it.

Mr. Page said Mr. Brassey's objection as to divers working 200 ft. below the sea, without undue pressure upon their lungs and bodies, was very easily answered. Supposing the room in which they then were was at the bottom of the sea, and the walls were carried up above high water, would any one dispute that they could send out a diver from that room into the sea, passing through a sort of valve-cupboard into the sea, and give him only the atmospheric pressure, with perhaps a pound or so more. He had devised a dress for this purpose, by which all pressure was removed from the body. That being explained, all the difficulty about divers operating in deep water was removed. As to want of experience, all great engineering feats had been carried out without previous experience.

THE TRADES MOVEMENT.

Manchester.—Some months ago the painters of Manchester gave notice that on the 1st of April they would cease work unless an advance of 1d. an hour was given by their employers, along with a reduction in the hours of labour of three hours and a half per week. The men and their employers each agreed to select six of their number to form a committee of arbitration, to lay the whole subject before the Mayor of Manchester, who was appointed umpire. His worship has been hearing both parties, and at the close he said, it appeared from the admissions on both sides, that every four years there was a proportionate rise in the wages paid to the men, and he thought that, under the circumstances, the masters should pay the 7d. per hour, and accede to the demand for a reduction of three hours and a half per week. This was, in fact, giving the men an extra ½d. per hour, with the reduction

demanded in the hours of labour. Mr. Harwood, one of the principal employers in the trade in Manchester, in proposing a vote of thanks to the mayor, stated that it would be a great loss to the masters to give the advance at the present time, but it was preferable to coming into collision with the men, and creating misunderstanding and contention. He hoped that the men would, by increased diligence and attention to their work, in some respect qualify the great loss which they must inevitably sustain.

Motherwell (Glasgow).—A large number of labourers in the employment of Mr. Smith Brown, contractor, have turned out on strike for an advance of wages. The men allege that although other branches in connexion with the trade have received an advance, they have obtained none; hence the dispute. The strike at present is only partial.

Stirling.—The operative masons in Stirling have struck work, in consequence of the employers having refused to give an advance of ½d. per hour per day of nine hours. The strike still continues, and upwards of 100 masons, with a considerably greater number of labourers, are out of employment. The masters have resolved to assist each other as far as possible, and, by the aid of their apprentices, are endeavouring to push forward the work upon such buildings as are most urgently required.

Perth.—A meeting of the master masons has been held, and it has been unanimously resolved not to comply with the demand of the operatives for the additional ½d. per hour. A good number of men are coming from the country districts and obtaining work at the present rate of wages, —viz., 5½d. per hour. The men connected with the Masons' Association continue to hold out. Seventy-seven have found employment in other places, but thirty-two are still idle in the town.

Coatbridge.—The joiners of Coatbridge and neighbourhood have lately evinced considerable dissatisfaction since the commencement of the strike at Glasgow, and every effort has been made by them not only to support their city brethren, but to obtain the terms for which they are agitating. Weekly meetings have been held to consider the question, and it has been decided that, unless the masters agree to the terms proposed by the Glasgow men on strike, they shall also turn out. Accordingly, no agreement having been come to, the men have ceased working.

Fatal Trade Dispute in Bohemia. — The Austrian journals give some imperfect details of a lamentable collision between the Imperial troops and a body of workmen on strike. It appears that the trade differences in Northern Bohemia have lately resulted in the now ordinary form of a strike on the part of the discontented workmen. On the 31st of March the artisans employed at several manufactories at Reichemberg, having ceased to work, proceeded in a body to some establishments at Swarow, with the object of compelling a cessation of labour in that town. On their arrival they found the principal manufactory occupied by the troops, and a conflict ensued, which, unhappily, terminated in loss of life. It is stated that the workmen on arriving proceeded to insult the soldiers and to pelt them with stones. The latter after a time became exasperated, and fired upon the crowd. The result was five men were killed and twenty-five or thirty were more or less seriously wounded, whereupon the workmen dispersed; threatening, however, to return in greater numbers and better prepared to exact vengeance. One soldier was killed and another seriously wounded by stones. Great agitation prevails throughout the northern part of Bohemia, and all the manufactories of Swarow have been closed, while reinforcements of troops are being sent from Prague.

THE GREATNESS OF GREAT MEN.

Recently an excellent lecture on this subject was delivered, in Wakefield, by Mr. Walter Smith, the head-master of the Leeds, Bradford, and Wakefield Schools of Art. In the course of his remarks he said he considered that in all great men there were these three features,—love of work, unfailing courage, and perseverance. Had some men not been the greatest workers the world would never have known them as great men. Mr. Smith, in answering the question "What is the secret of the success of great men?" said:—"The secret of great men is that there is no secret at all, and this is a secret which, though proclaimed upon the housetops before multitudes of hearers, will always be believed to be a secret, and for no better reason than that it is the easiest and most plausible way of explaining the difference that we see to exist between ourselves and those we acknowledge to be great. If we would fairly and honestly take to the acknowledgment that whilst we have slept great men have worked, whilst we have been self-indulgent and prone to luxury, they have been self-denying and inured to hardships, we should lose something in the good opinion we have of ourselves, but we should gain a great deal in self-knowledge, and dispel a mystery that should be no mystery at all. There seem to be common elements of character in all great men, almost the identical basis of character in the one as in the other, the different vocations explaining any minor differences that are to be found in them. Thus I find precisely the same features in the character of Michelangelo and the Duke of Wellington, two men living three centuries apart, in different countries, one a great artist and the other a great warrior. In them, as in every instance I have yet studied, the distinguishing feature is an intense love of work, work of the kind that fell to the lot of each to do. Another feature is indomitable courage, and the last is a never-dying perseverance. Though I have carefully studied the histories of many of the greatest men, in order, if I could, to discover the source of their greatness, I have never yet come upon one great life that has lacked these three features,—love of work, unfailing courage, and perseverance.

And this leads me to express the opinion that the only reliable sign or indication of genius is eagerness for and love of work as a basis; and whether this genius will ever become developed to maturity will depend greatly upon the other two features, courage and perseverance; though, of course, something depends upon health. Another feature of great men was, that failure did not discourage them. If they sat down with tearful eyes and lamentations, surrounded by their mistakes, and overwhelmed by them, they would never rise over them. Greatness persevered and overcame, whilst littleness lost heart and failed." As an illustration of perseverance the lecturer instanced the case of George Stephenson, who succeeded, in the face of apparently insurmountable obstacles, in laying a railway over Chat Moss, between Manchester and Liverpool. That which at first sight was deemed impossible to achieve was afterwards declared the strongest, and safest, and cheapest part of the line. Other men would have abandoned the project, but George Stephenson was a great man, and he did not. The lecturer conceived that in one single injunction, "Whatsoever thy hand findeth to do, do it with thy might," lay the elements of success. "It is not," said he, "the nature of your work, nor the importance, socially or pecuniarily, of your trade or profession that will give you the opportunity or means of living a great or noble life; for there are models in every calling, however important, and nobles in every occupation, however insignificant. The man dignifies or degrades the office, the office does neither to the man. There is absolutely no employment which may not be made the means of arriving at success in life; there is none which cannot be degraded into failure. The only stipulation is, that your hands shall have found the work to do, and that it shall be done with your might. Not with your inclinations only, nor with your faltering hands and timid hearts, but with might; and might means strength of hand and strength of heart, skill and courage combined in one strong word."

LECTURE BY SIR H. JAMES ON THE GREAT PYRAMID.

A lecture on the Great Pyramid of Egypt has been delivered before the members of the Hartley Institution, at Southampton, by Col. Sir Henry James, R.E., director-general of the Ordnance Survey. Sir Henry entered at some length into the details of measurement of the Great Pyramid, pointing out its perfect exactness, and said that many enthusiastic gentlemen imagined these beautiful proportions must have been the result of superhuman labour, following out this idea in a manner which excited the admiration of those who were their followers, and the ridicule of those who were not; among the latter of whom he included himself. In passing, the lecturer exhibited an exact representation of what he said was the most interesting piece of wood in her Majesty's dominions—the wooden cubit measure found in Egypt, and now deposited in the British Museum, and which was more than 3,200 years old. Having remarked that he had a copy of this measure sent out to Egypt to Sergeant-Major Macdonald, with instructions to measure the pyramid, and stated one or two of the results thereof, Sir Henry went on to say that the side of the square base of the pyramid was equal in length to 760 English feet, and his experience was that people had a very imperfect idea—a difficulty of realising such dimensions. The stone used for the facing was of a better class than that which formed the inner portion of the building, and to give an idea of the recklessness of cost, so to speak, and the tremendous indifference to any amount of labour which characterised the old Egyptian kings, the lecturer said they, at enormous pains, had large stones brought from the opposite side of the Nile, and placed in their present positions. They were, too, very clever as architects; for instance, in the king's chamber inside the pyramid there were stones 30 ft. long, placed one over another: these stones were not found in Lower Egypt at all; but although some were 90 tons in weight, they were brought in vessels 500 miles down the Nile, carried across great causeways, and then placed in the pyramid 100 ft. above the level of the ground. Then, again, as to the finish, this Syenite stone was one of the very hardest known, and yet it had been polished and built in to form a casing for the king's chamber with such an exact skill and so high a finish, that the finest piece of tissue paper could not be put between the joints, and this in a place built 4,000 years ago for no other purpose than to hold the body of one man. If there was one thing which more than another he admired in the construction of these pyramids it was the extraordinary manner in which the builders introduced the principle of counterbalancing, by which, he believed, the stones were raised to their positions. By aid of a model, the handiwork of Corporal Goodwin, R.E., who worked it on the platform, Sir Henry explained his theory upon this point. In conclusion, he said that the assertion of some that the pyramids were built only as a standard of measure was an insult to the understanding.

THE NINE HOURS MOVEMENT.

BY A WORKMAN.

Sir,—Another agitation in the building trade is the last ominous announcement which has been the round of the papers. Among the many strange things in existence there is none more startling than the continual agitation of the builders' workmen: contentment to them is unknown,—and in season and out of season the brains of the leaders are scheming agitations. It matters not what is the state of trade. When brisk they want a rise of wages; if slack, a reduction in the hours of labour.

According to the reports, the new movement is making great progress. Meetings are held, at which every one agrees, and the rules for the guidance are unanimously passed as the apex of legislative wisdom. It is a pity that any doubts or jars as to the benefits of the movement should disturb such rare harmony. Nevertheless, I think it is the workmen's duty to weigh their unanimous proceedings in the scale of common sense, and, if found wanting, to expose the fallacies which have misled a portion of their fellow-workmen. Before doing it, I may state that I have spoken to many workmen about the movement, and have not found any in favour of it. The labourers are tooth and nail against it; and the others say, that as the building trade is better paid, has more privileges, and work less hours than other trades, it is the wisest course to let well alone.

The movement in 1859 for a reduction in the hours of labour led to one of the greatest strikes on record. The revivers of that movement have changed their tactics, and state they are willing to drop the hour's pay, and take nine hours' pay for nine hours' work, thereby assuming that no opposition will this time be offered by the employers, as the object is to provide for the surplus hands in the trade, and the leaders think they are entitled to much praise for their philanthropic efforts. But it so happens that there is something further in the shape of a code of working rules which gives the key to the movement, and from them we learn that the reduction of the hours of labour is the pretence,—higher wages, more privileges, the object; and it is evident that the masters must, in the inte-

rest of the public, resist, or this movement will, like many others, end, if not at once opposed by masters and workmen, in a ruinous strike. As such is the case, it behoves employers and workmen who object to the movement, and to these continual agitations in the trade, to arouse themselves and form, not an anti-strike or a free-labour society, but a common-sense society, whose object would be to expose the fallacies and inconsistent considerings of the men who now pretend to lead and regulate the building trade. The reduction of the hours of labour is a favourite theme with trade-unionists; they have an idea they can, by reducing the hours of labour, regulate the supply to the demand; they appear to think that work is a fixed quantity, and that workmen are an exact number. But, unfortunately for their theory, London is the metropolis of Great Britain, and workmen from all parts flock to it; and, further, it is the ambition of a large number of apprentices, to become London workmen. They have heard of it as a place where enormous wages are to be earned, and thus it is that in London there is, and always will be, a large number of unemployed workmen. And this demand to raise wages, that are already much higher than the wages in other trades, will end disastrously to all concerned, in the first place, by the absorption of workmen whose trades are closely connected; and in the end they will be compelled to accept lower terms and less privileges than they previously possessed.

The rule relating to working hours states "that nine hours are to be reckoned as the working time; all over that to be called overtime, and to be paid time and half, and double time." Before discussing the consequences of that, I might ask, who now objects to overtime? I have worked with unionists, and I never heard any object. We know that in theory they pretend to object, but in practice they take to it kindly without a protest, and therefore this nine-hour movement is a dishonest movement, because it is in its essence a scheme to raise wages. It is, or ought to be, well known that a large part of the builders' work in London consists of alterations and repairs, and it is that branch of the trade which the rule as to overtime would most affect, and its influence would have a deadening effect in relation to the various trading establishments in the metropolis. In shops and offices, every inch of space is economised, and all sorts of schemes are devised to make the most of it; and alterations and repairs are a serious consideration, as it is a partial stoppage of business, and the tradesman is always glad to see the backs of the builder's workmen; and no doubt in the first-class businesses the inconvenience of having workmen about is almost as great a consideration as the cost. Overtime is then a matter of necessity, and if they are to be taxed from 50 to 75 per cent. for it, the chances are they will prefer to go on in their old way rather than submit to the workmen's demands. Other cases might be cited which would more illustrate this short-time movement, but sufficient on this point has been said to show that, in relation to alterations and repairs, it would inflict loss on the public and seriously affect the workmen's earnings.

In London there is a large number of small builders who employ from two to twenty workmen, and these in most cases have not more shop-room than they require to carry on their usual business. It sometimes happens that they are unusually busy; every bench is full, and they require the men to work overtime; but if they are to pay a heavy tax for it, it is evident that it would prevent any increase or enlargement of their business; and thus the rule would keep small tradesmen in a fixed position, and give an advantage to those who happened to have more shop-room than they actually required. As some builders are more fortunate than others,—or, in other words, there is a surplus of master builders,—it would be well for the leaders of the movement to make it more absurd than it at present is, to take into their consideration the case of the unemployed masters, as there are at present many of them who have no stowage, and yet want more room, whilst there are others with plenty of shop-room and no work. According to our leaders' ideas this state of things ought not to exist. I hope, sir, you will allow, in the interest of the workmen, this question to be discussed in the *Builder*, as, in my opinion, that is what is required to bring the workmen to take a common-sense and practical view of the unwise proceedings of the so-called working-class leaders.

JACK PLANE.

THE POOR OF EDINBURGH.

SIR,—You have frequently, in the pages of the *Builder*, called attention to the subject of the destitution existing in the metropolis, and it has occurred to me to bring under your notice the "Edinburgh Association for Improving the Condition of the Poor."

The Association has been in existence for two years, and after having had many obstacles to contend with, is now in good working order, and is doing much good. This city is favourable for such an experiment. The poor are more concentrated in certain districts than is generally the case, and these are not far removed from the residences of the better classes. There are here a number of retired military and professional men, with time hanging on their hands, to whom the work of visiting, &c., is not burdensome, but the visitors are recruited from all of the well-to-do classes who have any time to spare; and some of the most energetic and useful of them belong to the class of skilled artisans. The Association is particularly anxious to get at the children: where possible they are sent to school, and free dinners have been given to many of them (all are invited). Members of the Association attend these dinner-parties, and a register is kept of the guests, and their cases inquired into. By this means we get at the root of the evil.

By your making public this matter you may induce others to follow a good example. I believe that applications have been made to the central committee from other cities for information as to the working of the system.

W. G. SHIELLS.

WORCESTER DIOCESAN ARCHITECTURAL SOCIETY.

THE annual meeting of this society has been held in the Council-room of the Museum of the Natural History Society, Foregate-street, Worcester; present,—Earl Beauchamp (in the chair), Rev. R. Cattley, Rev. G. S. Munn, Hon. and Rev. H. Douglas, Rev. T. G. Curtler, Rev. H. J. Vernon (Eckington), Rev. H. G. Faussett, Rev. J. F. Green, Rev. R. H. Eyre Davies, Mr. E. Lees, Mr. J. Severn Walker, and Mr. G. J. A. Walker.

The Secretary (Mr. Severn Walker) read the annual report, which was adopted; after which some discussion took place as to the right and duty of the society to criticise the various public buildings erected in the locality during the past year.

The Rev. M. E. C. Walcott was elected an honorary member of the society, and the office bearers were re-elected.

THE ARCHITECT'S DEPARTMENT, BOARD OF WORKS.

THE preparation of the New Buildings Bill, to which we have referred in our present issue, as well as that of various previous drafts, devolved on Mr. Walter Newall, the principal clerk in the Architect's Department. After 26 years' service, partly with the Referees of the 1844 Act, and since then under the present Board from its foundation, Mr. Newall finds himself with a salary of 300*l.* a year, attained at the beginning of 1868 by the final increment of 10*l.* under the first-class scale, and we do not wonder to hear that he is now seeking to induce the Board to consider his position. We have reason to know that his duties are such as have always required knowledge and judgment, and have long called for nightwork, week by week, in the preparation of returns and reports which could not be attended to during office hours. A public servant such as this should not be allowed to end his days at 300*l.* a year.

THE GREAT HALL, ALLEYN'S COLLEGE, DULWICH.

THIS handsome apartment forms the central feature of the block of buildings just completed, as the new College at Dulwich, of which a general view, plan, and particulars were given in a previous volume of the *Builder*.* The whole of those buildings are now complete, and have been partially in the occupation of the school, where 250 to 330 boys are at present assembled. The building, when fully occupied, has accommodation for 800, and situated as it is close to London, and in the midst of a very populous neighbourhood, which is ever on the increase, there can be no doubt that the full number of scholars will be at once eager to enter so soon as the arrangements of the trustees permit. At present, as we have said, they do not propose to take more than 300 boys.

The hall is on the principal floor of the building, and is approached on each side from the ground floor by spacious staircases communicating with the play cloisters of the boys, and which connect the north and south wings of the building with the central block. Its length is 92 ft., its width 43 ft., and its height above 50 ft. There is a raised dais at the eastern end, which will be available, we presume, for those speeches and dramatic recitations which have so agreeably marked the examination prize-days of Alleyn's College during the last few years. The great ribs of the roof are supported on pillars of red Devonshire marble, highly polished, with richly-carved stone capitals, and standing on pedestals of terra-cotta work in cream colour and light green ware of very finished and beautiful manufacture, from the works of Mr. Blashfield, of Stamford. A panelled oak dado runs all round the hall between these pedestals, while the panels between the pillars are to be gradually filled with the recorded names of scholars of Alleyn's College who shall have attained distinction in their after-studies and their future lives. The great doors each side of the hall leading to the staircase, of carved oak, are worthy of observation. The hall is lighted by a large mullioned window at each end, as seen in our engraving, and which is filled with glass, relieved by a stained glass bordering; while the tracery contains the armorial bearings of the College. These windows have been executed by Mr. Moore, of the Eckford Glass Works, Clerkenwell, and the border and other coloured parts are formed from Stamford coloured glass, the ingenious process for doing which has been patented by Mr. Moore. The window jambs, mullions, and tracery are all of terra-cotta, enriched with modelled carving from Mr. Blashfield's manufactory above mentioned. The roof of the hall is entirely in deal. Its design is similar in style to the roofs of some of the great churches and basilicas of North Italy—that is, a wagon form; sometimes found with a single curvature from wall to wall, and sometimes, as at the great church of St. Fermo, at Verona, of several stages of curvature,—an idea which has been carried out at Dulwich. These roofs in Italy, however, are never divided into bays, as at Dulwich, and the result is a heaviness of effect which is here relieved by the circular principals springing from hammer beams supported on the marble pillars before referred to. The spandrels of the springers under the hammer-beams are filled with the armorial bearings of the College, duly emblazoned in colour, and the effect of the whole is enhanced by the simple expedient of staining its principal lines of mouldings, but leaving the natural colour of the deal in the carved or enriched features; the whole then being varnished. From the centre of the roof rises a louvre, for about 30 ft. above the ridge of the roof, intended for ventilation, which, being treated externally in several stages, and terminating with a crocketed spire, forms an important and graceful feature of the exterior.

This hall is intended to be used for dining the masters and those boys of the College who may wish to avail themselves of the arrangements about to be made by the trustees for this purpose, and with a view to which a complete range of kitchens, &c., is provided on the lower floor, with a double lift thence to the service-room on one side of the hall. It is calculated that about 400 can easily dine at the same time, though it is doubtful whether so many scholars will wish to do so, as, of course, many live with their relatives in close proximity to the College.

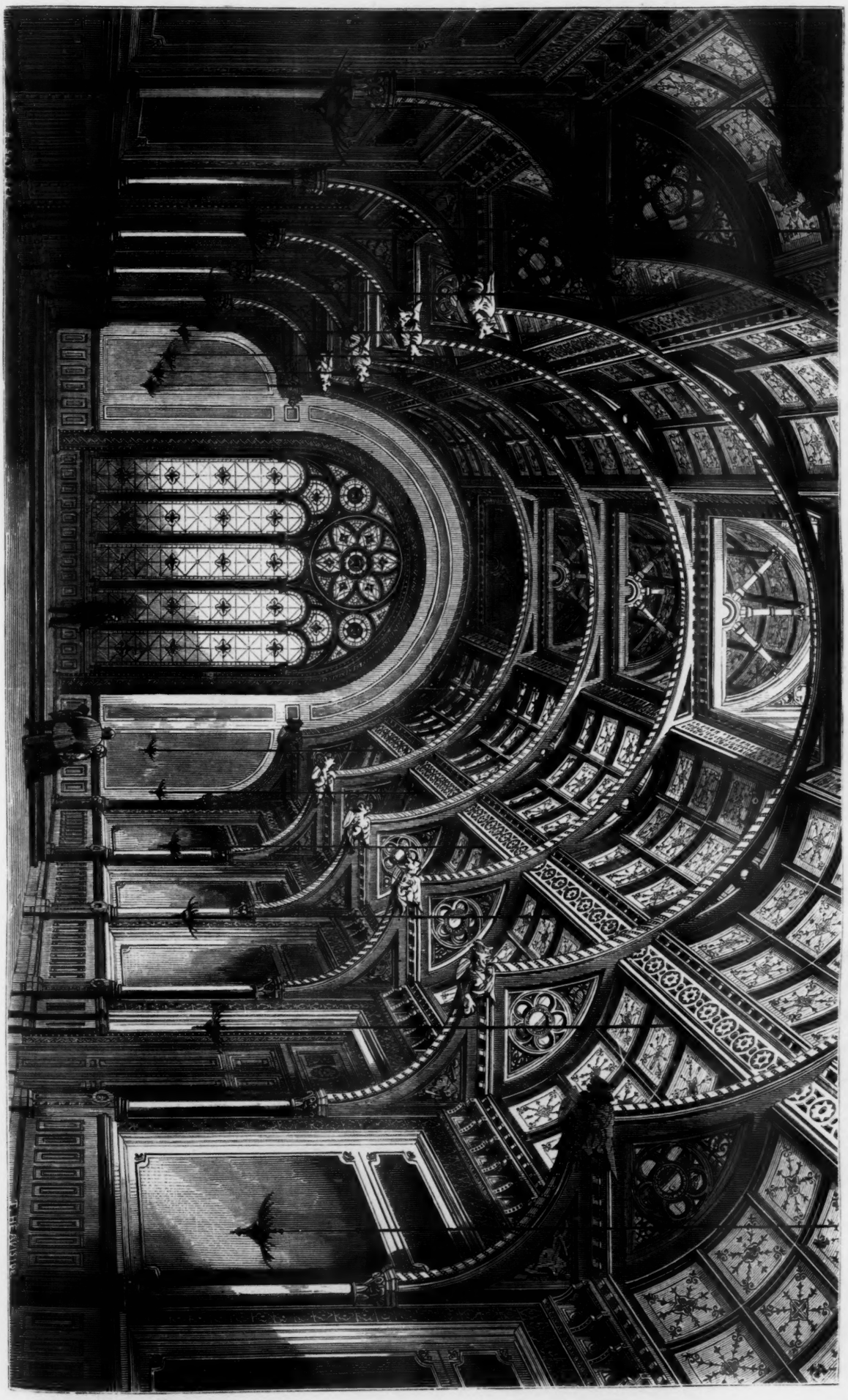
On the annual prize days, 700 to 800 spectators will readily be accommodated, a fact which will encourage and reward the exertions which doubtless will be made to vie on these occasions with Westminster, Eton, Harrow, Rugby, and Marlborough.

We should not omit that the walls and roof have been tastefully decorated in colour and arabesques, by Mr. Schmidt, of Kingsdown-road, Islington, under the immediate direction of the architect to the governors, Mr. Charles Barry, from whose designs the whole pile of buildings has been carried out.

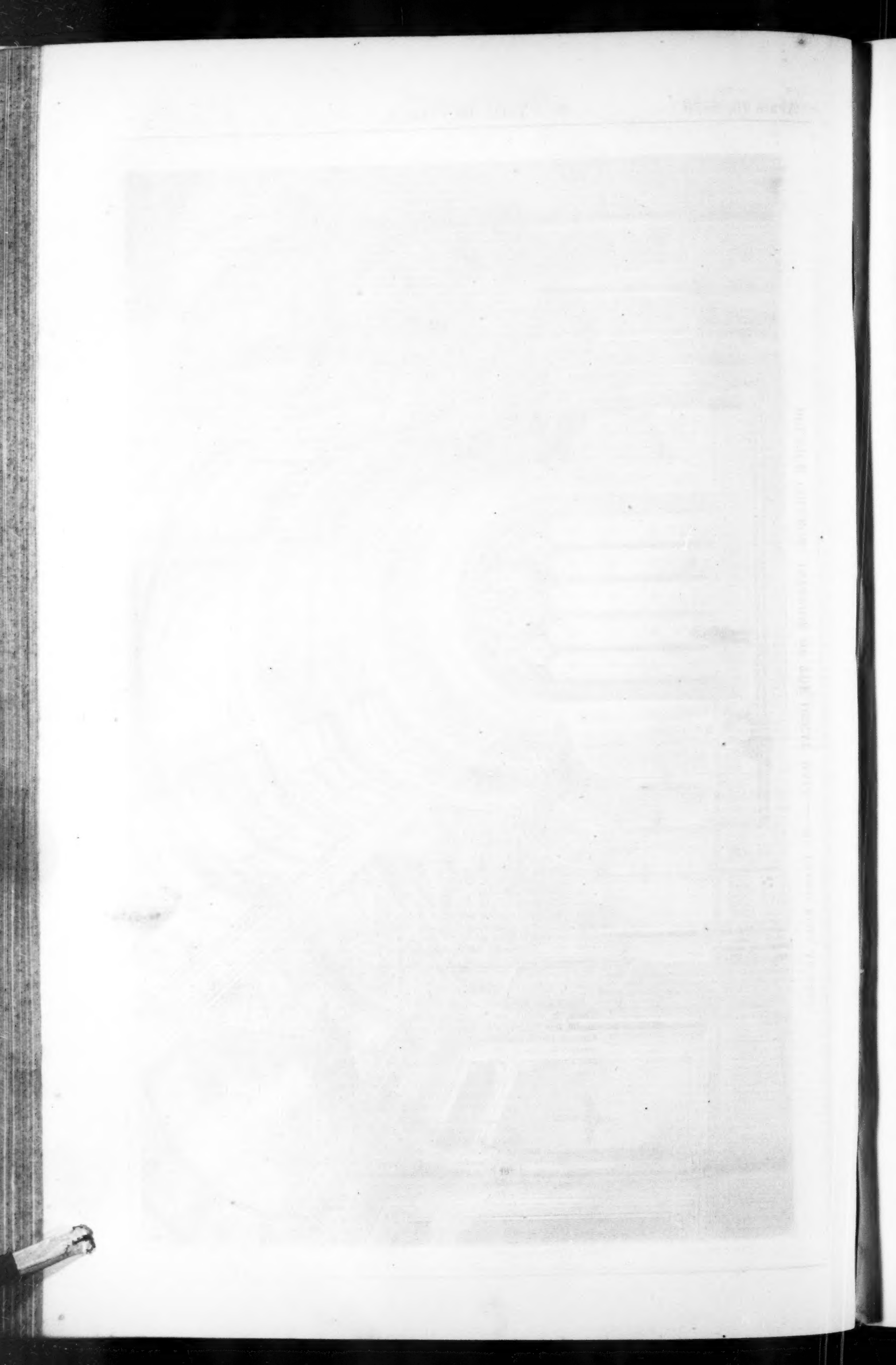
* Vol. xxvi., pp. 521, 531.

MR. CHARLES B. VIGNOLES, F.R.S., *President of the Institution of Civil Engineers.*

ANCIENT TEMPLE AT EUYUK.



DULWICH COLLEGE: INTERIOR OF THE GREAT HALL.—Mr. Charles Barry, Architect.



RUINOUS BUILDINGS AND THE BUILDING ACT.

WITH reference to certain proceedings taken by the Commissioners of Sewers against Mr. De Keyser, of the Royal Hotel, Chatham-place, in respect of certain works reqaired to be done to his premises, to render the same safe, as reported in our pages,* Mr. Power has forwarded to us a communication, of which we give the pith:—

"On the 3rd of January last, a policeman (and not 'or somebody else,' as in your report) called here, and left word with my clerk that the back wall of No. 10, Chatham-place, was in a dangerous condition. This information I forwarded to the commissioners in the usual way, upon forms supplied by themselves for this purpose, and on the 11th of January I received an order from them, to survey and report upon the state of the house in question. On the 17th of the same month I reported that, in my opinion, a portion of the back wall was in a dangerous state, and recommended certain steps to be taken to secure the same.

Mr. De Keyser, who is one of the commissioners, seems to have felt himself aggrieved, and complained, through his surveyor, Mr. Gruning, to the commissioners of my conduct in this matter.

My certificate and report upon the above bear date January 17th; and Mr. De Keyser's complaint, through his surveyor, is dated February 14th, nearly one month after my report had been sent to the commissioners; and when I state that, up to the former date, Mr. De Keyser was an entire stranger to me, it will be seen how groundless is the insinuation that in these proceedings I was actuated by 'malicious feelings:' quite the contrary. Mr. De Keyser solicited an interview with me on January 28th, relative to this same certificate, and I then found him to be a very courteous and, as I thought, honourable gentleman; indeed, we parted on very friendly terms.

With regard to the question put to me in cross-examination, as to whether the wall would stand for 'one, two, ten, or twenty years,' I declined to answer, on the ground that I had nothing to do with the future; the point I had to decide, regard being had to the safety of the public, was, 'Is or is not this wall now dangerous?' and my opinion is most decidedly that it is dangerous, and ought to be properly secured.

All practical men who are conversant with defective old work know that a structure may stand for an indefinite period, and may, on the other hand, give way at any moment.

The statement that a 'fillet of cement had been run round the house' is simply untrue. The only cement I could discover was a few small bands, about 2 in. or 3 in. long, placed at the top of the cracked brickwork. This was, however, at some considerable distance above the crack to which I more particularly referred; and when I say that it is some 12 ft. long, and varying from ¼ in. to ½ in. wide, running obliquely from north to south, and subject to all the vibration consequent upon the roadway next the house being used for the purpose of conveying heavy loads on to the new Embankment, I think you will agree that as the subject was brought before me officially I could not, in the interests of the public, have expressed a different opinion than the one contained in my certificate without a grave dereliction of duty, and, in the event of an accident taking place, a judicial censure.

One of the witnesses for the defendant admitted in cross-examination that the wall was to a certain extent dangerous. . . . .

EDWARD POWER, District Surveyor."

COMMUNICATION WITH FRANCE.

SIR,—I have read with much interest your article on the above subject, and although I take quite a different view as to what ought to be done, I trust that you will give insertion to the following remarks, as it must be the desire of us all to arrive at the truth and at the really best means of effecting the object desired. . . . . .

It is now more than five years since I first brought forward my project of a tunnel under the Channel, and before doing so I was guided entirely by the experience I obtained, first in the mining districts of Northumberland, where, for ten years of my practice as a civil engineer, I obtained much useful information applicable to the subject in question. The Radcliffe Colliery, near Amble, is but a few hundred yards from the sea shore. The depth of the shaft is 75 fathoms, that is, about 65 fathoms below the level of the sea, and there is not the slightest drop of sea-water. I opened out an extensive quarry close on to the sea shore, and which supplied the greater part of the stone used in the construction of two breakwaters, one of them nearly half a mile in length; and although there was only a thin wall of natural rock left as a barrier to the sea, the excavations within the quarry were carried in some places as much as 40 ft. below tide-level, and the infiltration was only sufficient to make the water in the quarry slightly brackish, so that a ten-horse engine, working a 10-in. pump eighteen hours out of the twenty-four, was sufficient to keep the quarry dry. Then, as the Wealden formation contains much thinner beds of clay than are met with in the coal measures, there would not, in my opinion, be the slightest chance of meeting with sea water at the depth I propose to construct the tunnel under the Channel between Dungeness and Cape Grisnez; and, to show the retentive nature of the soil at Dungeness, there are two or three large ponds of fresh water almost close to the shore; the bottoms of these ponds are below tide-level, and I believe that not the slightest drop of salt water would be met with in sinking a shaft there, and it is quite certain that spring water could be overcome by pumping. Then, as regards the project for constructing the tunnel through the chalk, the five years' experience I had as civil engineer to the Admiralty at Bermuda, where very extensive quarries have been opened out, in which from 400 to 500 men daily worked, the whole of the island where the works were situated consisted of limestone; some portions hard, others soft, approaching to chalk, but more compact; nevertheless, it was quite impossible to get down more than a few feet below tide-level by any amount of pumping brought to bear; and in consequence of this difficulty a graving-dock could not be constructed in the ordinary way, which led the Lords of the Admiralty to determine upon the floating-dock sent out last year to Bermuda.

When I took up the subject no project of the kind was then before the public. I was free to select what I conceived to be the best line for the tunnel. My experience in Northumberland convinced me that if strata could be found in any way resembling the coal measures there, the tunnel could be made. My experience in Bermuda convinced me that any formation resembling chalk should be avoided; and having ascertained that Dungeness is the very centre of the Wealden, and that it extends under the Channel in the direction of Cape Grisnez, I feel convinced that the tunnel might be constructed there with the greatest certainty, and at much less expense and in much less time than generally supposed. Now, in comparing this line with the line of tunnel more recently proposed to pass through the chalk from Dover and the South Foreland to Cape Blanc nez it will be seen that the latter requires 29½ miles of continuous tunnelling, whilst the Dungeness line will require 28½ miles: assuming both to have equal gradients at the approaches, the South Foreland line would have only two shafts, the Dungeness line three—one on the shoal in mid-channel, which would not only more than double the facilities of constructing the work, but would give much better ventilation than could be obtained without a central shaft; and if it be desired to put down other temporary shafts in order to expedite the works, the clay strata of the Dungeness line will admit of it without difficulty; but it would be impossible to put down shafts in the tideway along the line of the chalk.

There are a great number of other considerations in favour of Dungeness. It would be the nearest route between London and Paris. It would be the most central for joining the railways. The wealden formation would produce much useful material for the works. Several thousand acres of barren land might, by means of the spoil from the excavations of the tunnel, and from other changes that would be effected by the railway, be brought to great value for building and other purposes; and I believe that if the work was once commenced, it could be carried on without the slightest interruption, and that I have in my estimate of cost and time allowed for every possible contingency. GEORGE REMINGTON.

NEWTON MARKET COMPETITION.

SIR,—True it is that I, the successful competitor in the above competition, am a son of one of the members of the Board, but what difference that makes in the design I cannot see. Does your correspondent mean to insinuate there was any unfairness used in arriving at the decision? If so, I simply challenge him to prove it.

An architect's *assistant* (not a *pupil*), until very lately a resident in Newton, thoroughly acquainted with the site, and the requirements of the place; and, moreover, having given the subject great attention for three or four years past (having made designs for improving the market for the former proprietor, before the property came into the hands of the Local Board), it may not seem very surprising that the first premium fell to my lot.

That my design is better suited than any other to the requirements of the town, I think may be inferred from the majority (8 to 3) through which I obtained the premium, and by its having passed two discussions in committee without the plan being materially altered. The elevations, which were kept very plain to save expense (neither the situation nor the instructions justifying expenditure in this particular), may of course be improved, if thought desirable by the Board, at a proportionate increase of cost. If the two other designs you name *did* obtain a larger share of favour with the public than those premiated (which, however, I greatly doubt), I can only attribute it to their highly-finished perspectives. There are, however, I am happy to say, gentlemen on the Board, "old birds" who are not to be "caught by such chaff." JOHN CHUDLEIGH.

THE ARCHITECTURAL EXHIBITION, CONDUIT-STREET.

WE desire to point attention to an advertisement in our present Number announcing that the time for sending in drawings has been extended to the 20th inst. The private view is fixed to take place on the 7th of May. We have quite recently exhorted members of the profession to support the exhibition, and would ask them to look back to what we then said. Just now the committee have especial need of assistance.

BELFAST.

The Albert Memorial.—This memorial is not likely, it seems, to be inaugurated by royal hands, her Majesty the Queen having declined, through the Home Secretary, the invitation forwarded to her to visit Belfast, and the Prince and Princess of Wales cannot go to Belfast this year.

Workmen's Belfast and International Exhibition.—At a recent meeting of the Executive Committee in connexion with the exhibition, the secretary submitted the programme of arrangements for the local exhibition, and it was ordered to be printed and advertised, for public information, as soon as possible. The tender of Mr. Wm. Martin, for supplying refreshments to visitors to the Ulster Hall during the exhibition, was unanimously accepted. Some conversation then ensued on the best situation for the display of the fine arts contributed, and it was agreed that these should, as far as possible, be exhibited in the Minor Hall. The secretary reported that the erection of the shedding for the machinery was progressing satisfactorily. He also stated that he had received a considerable number of applications for space from local manufacturers.

New Church for Strabane.—A movement has been set on foot to erect a new Episcopal church at Strabane, the present edifice being old and badly adapted to meet the wants of the parishioners. 8,000*l.* is the sum named as the probable cost of the new church. The adjacent town of Omagh will shortly have a new church to replace the old and unsightly edifice in which the parishioners at present worship.

COMPETITIONS.

Eccles.—The following gentlemen have been invited to compete for the Roman Catholic Industrial School proposed to be erected on land already purchased at Eccles, near Manchester:—Mr. Young, Mr. Wm. Nicholson, Mr. Kirby, and Mr. Tijou.

INSTITUTE OF ARCHITECTS.

AT the last meeting, the Chairman reported that the formal presentation of the Royal Gold Medal and the distribution of the Institute medals and prizes would take place on Monday, the 2nd May, 1870, immediately before the annual general meeting, when it was hoped that the President, Sir W. Tite, M.P., would take the chair. The attention of the meeting was called to some specimens of terra-cotta facing brick, exhibited by Mr. W. Davison, of Egton, York. These bricks, which when used in execution are said to be washed clean by every shower of rain, are supplied by Messrs. Davison & Co. at 4*l.* 4*s.* per 1,000.

SANITARY ASPECTS OF ARCHITECTURE IN GLASGOW.

A PAPER has been read before the architectural section of the Glasgow Philosophical Society, by Bailie Salmon, on "The Sanitary Aspects of Architecture, as exhibited in the City of Glasgow."

Public sentiment, he said, coinciding with their own he had no doubt, had condemned the present sanitary aspect of Glasgow architecture as unsatisfactory and unsound. Alluding to what ought to be the character of the dwelling prepared for the family of a working man, he said he thought they must abandon the plan of erecting tenements of four stories high for the housing of the working classes, on the simple but emphatic ground that they could not do so without overcrowding; and he believed this could only be properly accomplished by extending the area of the city. He was convinced, after forty years' close acquaintance and much experience in connexion with this subject, that if our citizens were to be protected from infectious poisons, moral and physical, it could only be by transferring them to districts where the arrangements of houses and streets, and the provisions for every sanitary want, would be such as to render the infliction of such wrongs impossible. Thinking over this question for many years, and still more so of late, he had come to the conclusion that four or five villages should be built on each side of the city, and as close to its boundaries as suitable ground could be obtained. Each village or suburb should be large enough to contain a population of 10,000 or 12,000, or about 50,000 in all, and to which could be transferred a portion of the 30,000 or 40,000 who, from railway and City Improvement operations, would be compelled to leave their present noxious and miserable dens. In these villages every variety of working-class houses could be provided, from the cottage of the foreman, or small master, with its three or four apartments, to the one apartment and bed-closet, for those to whom it might be suitable. A large proportion of dwellings should be restricted to one story; none should be permitted of more than three stories in height; and not more than 300 inhabitants should be allowed to each acre.

Mr. Salmon made some remarks on the buildings erected by the Corporation of London and by the Peabody Trustees, which afterwards led Sir S. Waterlow to write a letter to the president of the Sanitary Section of the Glasgow Philosophical Society, in which he says:—"I have now under my control and management more than 1,000 tenements, containing between 5,000 and 6,000 souls, all the blocks constructed on the same principle, with *external* staircases, and four tenements or houses on each floor or flat,

* See p. 270, *ante*.

and varying from *four to seven* stories in height. The death-rate on the average would be less than 22 per thousand. Bailie Salmon cannot have made himself at all acquainted with the details of the subject when he speaks of the buildings erected by the Corporation of London and by the Peabody Trustees in the same category. If he had examined the principles of construction in each case he would have seen at a glance that they were entirely opposed to each other, the Corporation having adopted my plan of external staircases and perfect external separate ventilation to each tenement, while the Peabody Trustees have invariably followed the old plan of internal corridor, with the necessary consequence of internal ventilation and increased difficulty in the prevalence of the spread of epidemic disease. In my houses the tenements consist alternately of two rooms and a scullery, water-closet, &c., to each family; and averaging the family at five souls, the cubic area for each soul would be about 480 ft. Bailie Salmon's objection to six stories seems to me quite ridiculous, especially in the face of the fact that in my buildings the highest stories (even the seventh) are the most healthy, and let the best. Give me good and sufficient drainage, and a plentiful supply of water at the top of the houses, as we have in London, and then the higher the better the through ventilation and the more healthy the tenement. Suburban villages have been tried in the neighbourhood of London and have failed. Mr. M'Adam is quite right—the working people will not live in them; they prefer, and almost necessarily, their crowded localities, where work for themselves and their children is more readily obtained, and where their amusements are close at hand. Dr. Fergus is also right when he says that the great thing is to get rid of the foul air in houses. This can only be effectively accomplished by adopting the external staircase, and providing proper and sufficient drainage, well-trapped at basement, and with upcast ventilating pipe from lowest syphon. The working classes in Glasgow are housed much worse than in any city I have ever seen in Great Britain or on the Continent, and it behoves the more wealthy inhabitants to look to it ere great mischief arises."

CHURCH-BUILDING NEWS.

Westward Ho! near Bideford, Devon.—The new church of Holy Trinity for this increasing watering-place, has been opened by the Bishop of Exeter. It has been erected by the Rev. I. H. Gosset, vicar of Northam, and stands as a Chapel of Ease to that parish. It is built in the Early Pointed style, and in plan consists of a nave, 60 ft. by 20 ft.; chancel, 32 ft. by 18 ft.; chancel aisle, 19 ft. by 9 ft.; north and south aisles, 60 ft. by 9 ft.; organ chamber, 10 ft. by 9 ft.; vestry on north side of chancel, south porch, and western narthex, 20 ft. by 7 ft.; the height from nave floor to ridge of roof being 40 ft. Strength and solidity have been the aim of the architect. The external dressings are of Lundy Isle granite, except where Marwood and Forest-of-Dean stone have been used for contrast in colour. There is a bell turret, 18 ft. high, with two bells over the chancel arch. The dressings of the interior are of Bath stone, and the plaster is finished deep red. The nave roof is of deal, and that over the chancel pitch pine. The stone for facing all the plain masonry of the exterior was taken from the Kenwith Quarries. The floor of the chancel is laid with encaustic tiles, supplied by Mr. William Whitestone, of Coalville. The foundations rest on a bed of concrete, 4 ft. wide and 3 ft. deep, and in some cases 8 ft. below the surface. All the works have been completed by Mr. J. C. Tremear, builder, Bideford, from the plans and under the superintendence of the architect, Mr. W. C. Oliver, of Barnstaple. The carving was executed by Mr. H. Hems. The cost of the works will be about 1,700*l.*, exclusive of boundary walls, excavations, and fittings. The nave will seat about 400 persons.

Otterton, Devon.—Lady Rolle is rebuilding, at her own expense, the ancient parish church of St. Michael, Otterton. In taking down the chancel the workmen found a staircase leading originally, it is supposed, to the rood-loft. In the main the plan of the church has not been altered. The tower will still stand at the east end of the south aisle, but the chancel will be carried out further eastward, so that it will project beyond the aisle, and a north aisle will be added to correspond with that on the south side. Greater length will also be given to the west-end, and thus the church will be made to accommodate 700 people. The style will be Early Geometrical, which will carry the work back in association with the only period when such irregularities occurred as the eccentric position of the old tower. The nave and the two aisles will be covered by separate span roofs springing from bold columns and arches, and the chancel, which may be regarded as an addition to the form of the old building, will be proportioned to the increased breadth and length of the structure. There will be south and north entrance porches, but no door at the west end. The north entrance will be reached by a flight of steps, which are rendered necessary by the fall of the land on that side. The old tower remains; at least, the lower part, having been rebuilt above the belfry windows, and surmounted by a parapet with quatrefoil piercings. The roofs will be tiled. The walls will be of Berryhead stone, the windows, and all external dressings, of Ham Hill, and the interior arches of Bath stone; while the walls internally will be lined with Beere stone, and the columns made of Plymouth marble. The roofs of nave and aisles will be of stained deal, and the chancel fittings of oak, while the area of the church will be furnished with open deal benches. The ancient font will be retained. The capitals of the polished marble columns will be of Caen stone, of large size, and finely carved, and the chancel steps will be of Plymouth marble, like the piers, while the floors will be paved with Maw's encaustic tiles of rich design. The architect is Mr. B. Ferrey, and the builder, Mr. Burridge, of Exmouth. The carving and sculptured work will be executed by Mr. Harry Hems, of Exeter. The total cost of the building will exceed 7,000*l.* Service will be held meanwhile in the adjoining schoolrooms, which, like the church, are the gift of Lady Rolle to the parish, and have been only recently finished from Mr. Ferrey's designs. Mr. Cloutman is the clerk of works.

Folkestone.—Considerable alterations to the Church of St. Peter will be proceeded with immediately after Easter. The principal works will consist of a new north aisle, the enlargement of north transept and sacristy, and the extension and improvement of the sanctuary, which will have an apsidal termination, with windows of stained glass, and be separated from the nave by a low screen wall. The present roof is to be raised bodily an extra height of 5 ft., and at the intersection of the roofs of the nave and transepts will be erected an oak octagonal *flèche* finished with a leaded circular spire. All the present benches are to be altered by reducing the height of seat and back, and the new seats will be low, movable light benches. Externally, the walls will be of Kentish Rag, with Boxground stone dressings. The walls on the inside will be of red and blue bricks, and the columns and arches to the arcade, &c., will be of Caen stone. The work will be executed by Mr. Bowley, from the plans and under the direction of Mr. S. Slingsby Stallwood, of Folkestone, architect.

Derby.—The corner stone of St. Luke's Church, Derby, which is being erected as a special local memorial of the late bishop of the diocese, Bishop Lonsdale, has been laid. It is being built in a rapidly increasing suburb of Derby, on the new Uttoxeter road, called California. The plans were prepared by Messrs. Stevens & Robinson, of Derby, architects; and the contract was taken by Mr. J. Fryer, of the same place. The walls have been raised to the level of the ground-floor. The new church consists of a nave, which, with the porch at the west end, is 94 ft. 6 in. long, and 52 ft. 6 in. wide; a chancel, terminated by an octangular apse, 37 ft. by 31 ft.; two narrow side aisles to the nave, 3 ft. 6 in. wide in the clear; and a tower at the north-west angle, 21 ft. 6 in. square, and 120 ft. high to the top of the roof. Under the chancel, which is considerably above the level of the adjacent street, there will be a large room for vestry and other meetings, and over a chamber devoted to a heating apparatus, on the south side of the chancel, are vestries. The vestry is lighted with ten lancet windows, one on each face of the apse, and the others in the side walls. In the west end a rose-window will be placed, 14 ft. 6 in. in diameter. The walls and dressings are of stone, from Riggerlane quarries, at Little Eaton, near Derby. It is rock-faced on the exterior, and the interior in dressed ashlar. The roof, which will be of deal, stained and varnished, with circular trusses, will be covered with brown and blue Staffordshire tiles, and it is intended to pave the aisles with Minton's tiles. The interior of the church will be fitted with open deal seats, stained and varnished; and accommodation will be provided for 650. The whole of the seats will be free.

Hertford.—St. Andrew's Church has been consecrated. The style is Geometrical Pointed. The church consists of a nave, 78 ft. long, 25 ft. wide, and 47 ft. high, to the apex of the boarded vaulting, with aisles and transepts. The organ-chamber (12 ft. 6 in. by 16 ft. 6 in.), is on the north side of chancel, and the vestry, which is on the south side, is of the same dimensions. The total length of the church, including the old tower, is 122 ft. The width across the transepts is 75 ft. 6 in., and across the aisles, 49 ft. The area of the old church, exclusive of tower and porch, was 3,308 ft., including walls, and the area of the new church is 6,262 ft., or nearly double that of the old. The church is faced externally with knapped flints, random worked, the dressings being of Bath stone. The windows to the aisles (three in each bay) are cusped lancet lights. The clearstory windows are of two lights, with plate tracery. The transept ends are designed so as to form important features—the church being seen more in elevation than perspective. The transept rose-windows, which are filled with geometrical tracery, are 10 ft. 6 in. diameter, and below them there are two two-light windows. The roofs of the church are covered with red tiles, with ornamental cresting. The old tower has not been pulled down, the funds not justifying an attempt to rebuild it. Accommodation is provided for nearly 650 persons, including the choir and children. The cost of the church was 3,831*l.* The whole of the works have been executed from the designs of Mr. J. Johnson, of London, the architect, and the contract for pulling down and rebuilding the church was carried out by Messrs. Dove, Brothers, of London.

Datchworth (Hertford).—It having become necessary, in consequence of the unsafe condition of the tower of Datchworth, to remove and reconstruct the upper portion, a lofty spire has been erected. In addition to this the old and somewhat inconvenient pewing has been removed, as well as the gallery, and the interior of the church has been reseated, repaved, and restored, under the direction of the architect, Mr. A Blomfield. The total expense is said to be over 1,000*l.*, of which sum nearly 950*l.* have been raised.

DISSENTING CHURCH-BUILDING NEWS.

Sunderland. — Trinity United Presbyterian Church, Sunderland, has been inaugurated. The site is in Toward-road, facing the new park. The edifice is approached by a broad flight of steps, through a triple doorway, and owing to the fall of the land, almost perpendicularly towards the back, to the extent of upwards of 20 ft., a school-room of this height, and of proportionate length and breadth, has been obtained. The church is capable of accommodating 800 persons. In addition to the church and school-room, a sessions-house, vestry, and keeper's rooms, with conveniences, are attached. The building is designed in the Gothic style of architecture, and is built of stone throughout. The total cost will amount to about 4,000*l.* Mr. R. Allison, of Whitburn, was the builder, Mr. H. Andrews the clerk of the works, and Mr. T. Oliver was the architect.

Burslem.—The Wesleyan chapel at Burslem is to be considerably enlarged, with a view of providing proper accommodation for school children in the gallery during divine service, and additional sittings for the general congregation The present front of the building will be taken down, and the length of the chapel will be increased 16 ft., the new front being in the Corinthian style of architecture. There will be a porch, with new staircases and vestibules. The gallery over the new part will be used for the accommodation of the school children during service, and additional sittings will be added to the body of the chapel. The work is to be executed in Hollington and Grinshill stone, the shafts of the front windows being of Aberdeen granite. There will be new windows to the sides of the chapel, glazed with obscure glass with ornamental margins. Mr. John Stringer, of Sandbach, has contracted to do the work, from the designs of Mr. George Woodhouse, of Bolton. The total cost of the alterations will be about 3,000*l.* The corner stones of the new portion of the chapel have been laid.

Wakefield.—A Wesleyan chapel and school for the suburb of Belle Vue is to be erected, and, with this view, a premium was offered for the

best plan, and out of five sent in one forwarded by Mr. Watson, of this town, architect, has been selected. The chapel will be 40 ft. long by 31 ft. wide, and the schoolroom 31 ft. long by 15 ft. wide. The design is Gothic. The external facings will be red pressed bricks, relieved by white and blue bands and arches and stone dressings, the front gable to be coped with stone and have ornamented terminations and iron foliated finials. The roof is of moderate pitch, and will be covered with blue slates. Internally the fittings will be of red deal, and these also and the roof timbers will be stained and varnished. The division between the schoolroom and the chapel is so arranged that the two can be thrown together. The chapel will seat 210 adults, and the school accommodate 100 children. The cost of the building will be over 400*l*. The architect has already advertised for tenders for the various works. He has also been instructed to prepare a design for the chapel and schools at Eastmoor, which are to cost about 1,200*l*.

Shelf.—The New Independent Chapel at Buttershaw has been opened for divine service. The edifice stands in the midst of a large population, on the north side of the Halifax and Bradford turnpike-road, and a few hundred yards from the school-room in the direction of Buttershaw. The architecture is Gothic, and the plan consists of an elongated nave, with an apse for the organ at one end. The pews are open, and have sloped backs. There is a gallery over the entrance-door, and provision has been made for the erection of side galleries when required. The accommodation at present is sufficient for about 450 persons. A spirelet rises to a height of 90 feet from the front angle. The roof is open, the windows of tinted glass, and the vestibules and aisles are laid with mosaic tiles. The building stands in the centre of an area of ground containing 2,522 square yards, the cost of which was 252*l*. 4s., being 2s. per yard, and is enclosed by a fence-wall. The contractors were:—Mason, Mr. Thomas Lightowler, Buttershaw; joiner, Mr. John Patchett, Clayton Heights; glazier and painter, Mr. Henry Crowther, Shelf; slaters, Messrs. Hill & Nelson, Bradford; plumber, Mr. Samuel Dyson, Sowerby Bridge; ironwork, Mr. John Robinson, Stockton. Mr. J. Pritchett, Darlington, was the architect. The cost, including building and site, will be about 2,400*l*.

Nottingham.—The new Congregational chapel, St. Ann's Well-road, Nottingham, has been opened for divine service. The building is situated at one angle of the square formed by the junction of St. Ann's Well-road, Great Alfred-street, and Union-road. The style is Gothic, the materials being red brick, and stone dressings relieved with bands of blue bricks. On the front elevation are the two principal entrance-doorways, the heads of which are of moulded stone, pierced in cusped foliations. Between these entrances, which are approached by flights of steps, are two stone windows divided into two lights, and having cusped tracery in heads, and with moulded jambs and mullions. In the gables above these windows is a circular stone window with moulded tracery. Around the windows are arches of moulded and cut bricks, and moulded stone labels finished off with carved bosses. The front gable is surmounted with moulded stone coping and a cross of ornamental design. Between the side windows are brick buttresses, having weatherings of cut bricks. The interior of the chapel consists of a nave, with side-aisles, divided by an arcade of five bays, with pointed arches resting on iron columns, having moulded caps and bases. Above the arcade is a clearstory. At the east end is a circular stone window of foliated tracery, filled in with stained glass. The roof is lofty, all the timbers being visible, and, instead of being plastered, the ceiling is formed with beaded boarding, the whole being stained a dark tint. The gasfittings consist chiefly of rings encircling the capitals of the iron columns, with brackets at the pulpit end. The church is 63 ft. long by 40 ft. wide, providing accommodation for 500 persons; and underneath is an extensive school-room, with class and infant rooms, the floor of which is only 2 ft. 6 in. below the ground-level, so that the whole is well lighted from windows on both sides. The new edifice will cost 1,600*l*.

Hipperholme.—The corner-stone of the new Wesleyan chapel here has been laid. The site is immediately opposite the Whitehall Inn, the principal front being into the Brighouse and Denholme Gate turnpike-road. Messrs. R. Ives & Son, of Halifax, are the architects, and the chapel will be in the Geometric Gothic style. It will be built of Northowram wall-stones, with freestone dressings. The length will be 80 ft., the width 37 ft., and the height externally 50 ft., and there will be minister's and other vestries at the back. The interior will be divided into six bays. The roof will be an open one, with circular bindings, supported by stone corbels. One bay is treated as a transept, and the roof will be groined. There will be a gallery at the west end, over the entrance and vestibule, capable of accommodating 180 persons. The internal wood-work will be of yellow pine, stained and varnished, and on the ground-floor will be 298 sittings, making altogether a total of 478. The schools and class-rooms, to accommodate 150 scholars, will be constructed under the chapel at the east end. The principal entrance is to be at the west front, by a moulded doorway. On the side elevations there will be four bays, each having a two-light traceried window, the other bay being brought out to form a transept, having a five-light window. All the windows are to be glazed with quarry-glass, and the chapel will be lighted with gas, by coronæ, pending from the roof. The total cost will be 1,953*l*. The contractors are:—Masons, Messrs. Fletcher & Sharp, of Hipperholme; joiner, Mr. G. Townend, Halifax; plasterers, Messrs. J. Bancroft & Son, Halifax; and plumbers, Messrs. Firth & Son, Halifax; the total amount of the contracts being 1,553*l*. 19s. 6d. One-third of the cost of the chapel has been given by the trustees of the late Mr. Wm. Heap, of Halifax.

Birkenhead. — A new Primitive Methodist chapel has been built in Grange-lane, on land purchased from Sir William Jackson, bart., and in a central and suitable situation. The new chapel has been opened. It is a brick and stone building, built by Mr. W. Dickinson, Seacombe, from designs by Mr. John Wild, of Oldham, the architect. It is situated at the corner of Grange-lane and Horatio-street, opening into which are large school-rooms. The chapel will provide seat-room for 600 persons, and is the fifth place of worship belonging to the body in the Birkenhead circuit. The cost, including the land, will be about 3,000*l*.

East End (*Middlesex*).—The memorial stone of a Wesleyan new chapel has been laid here, by Sir F. Lycett. Mr. J. Willey is the architect, under whose superintendence the chapel has already been erected, by Messrs. T. Niblett & Son, of Hornsey Rise, builders. The cost is about 1,000*l*., and the building will seat about 250 persons: the school, which forms a transept to the chapel, will seat about eighty more. The building is in the Early English style.

PROVINCIAL NEWS.

Prestwich.—The new workhouse and hospital situate at the Cleveland, Crumpsall, cover some three acres of land, with about seventeen surrounding. The buildings and ground are estimated to cost 40,000*l*., or, it should be stated, the guardians of the union have sought borrowing powers for that amount. Mr. T. Worthington, Manchester, is the architect, and Messrs. R. Neild & Sons are the contractors. The building, which at present contains 128 inmates, but is calculated to accommodate 312, is situate in the immediate vicinity of the Manchester workhouse at Crumpsall, and was entered upon by the inmates in September last. Leaving the entrance lodge, almost immediately in front, and occupying the centre of the block, and so arranged as to command ready access to any portion of the house or hospital, are the apartments of the master and the matron. On the right of the rooms occupied by the master are the male wards, and to the left of those occupied by the matron the wards set apart for the female inmates. The first room along each corridor is devoted to a store-room for clothing and material for clothing, that worn by the female inmates being made upon the premises. Adjacent to this, and well lighted, ventilated, and warmed, is a large room termed "the day-room," for old paupers. From this point, the corridor is intercepted, and the visitor enters upon a distinct ward,—that set aside for the imbecile inmates, of whom there are twenty-six at present. On either side of the central building, from the master and matron's apartments, are distinct day-rooms, baths, and yards and offices for male and female imbeciles. Immediately above the wards are the dormitories, and on the ground floor a similar rule is observed. The imbecile dormitories are separated from the other rooms by doors, rendering each a distinct and independent ward. A similar observance is visible in the separation of the able-bodied paupers' apartments. At right angles to the main building, and connecting it with the premises in the rear, is the chapel, situate immediately over the general dining-hall. From this point,—the chapel occupying the centre of the whole block,—wash-houses, laundries, drying-rooms, and baking departments are ranged. Separated by a covered passage-way from the other buildings, the fever and hospital wards are erected in the rear of the buildings. Hospital accommodation is afforded in four separate wards for thirty-two patients in each. In constructing the new building, the Prestwich Board, according to the new legislative enactment, found it necessary to supply 1,200 cubic feet per inmate.

FROM VICTORIA.

Melbourne.—The foundation stone of St. Mary's Roman Catholic Church, at Williamstown, was laid about twelve years ago by Dr. Wilson, then Bishop of Tasmania. The works were for a short period pushed forward, but when the walls of the western end were a few feet above ground they were discontinued, and have ever since remained in that state. A few months back the Roman Catholics of that suburb determined to resume operations, and, the original plans not being forthcoming, called for competitive designs, incorporating the existing work for the completion. The one furnished by Mr. T. A. Kelly, of Elizabeth-street, architect, was selected. The plan includes a nave 24 ft. wide, and side aisles, giving a total internal width of 49 ft. by 100 ft. in length. A polygonal apse terminates the nave, while the "Ladie Chapel" and tower terminate the north and south aisles respectively. The tower is surmounted by an octagonal spire rising to an elevation of 110 ft. Internally an arcade of six bays of moulded arches, resting on cylindrical shafts with carved caps and moulded bases divides the nave from the aisles. The clearstory is pierced with foliated windows, two to each bay. The height from the floor line to the ridge of the roof is 40 ft. The principal entrance is at the west end, and consists of a projecting covered porch, having shafts, arch moulds, and dressings of freestone; similar porches, one at either side, give access to the aisles. A large wheel window set in a recessed bay, occupies the centre of the west gable, an ornamental cross surmounting the apex. The roofs will be open-timbered. The nave passages and porches will be laid with Maw's encaustic tiles. The main building has been constructed of bluestone, with fine axed dressings of the same material, while the tracery of the windows throughout will be in Geelong freestone. When completed, the church will afford accommodation for about 800 sittings, and the expenditure will be under 6,000*l*.

The new hall at the Criterion Hotel has been opened. It is nearly 69 ft. by 32 ft. in the clear, and 20 ft. from the line of the floor to the centre panel of the ceiling. The ornamentation of the hall is in the Greek style, the walls having panelled pilasters, with enriched caps and centre pateræ, surmounted by an enriched entablature, the frieze containing the honeysuckle and the husk of the order in relief. On the west side of the hall are six windows with enriched blockings and architraves, and the eastern wall has large mirrors to correspond. In the centre of the ceiling is a sunlight, 4 ft. in diameter, ornamented with Greek margins; and on either side are centres of flowers. In order to secure a thorough ventilation, the pilasters have flues at the back, and the pateræ are fitted with suitable gas brackets in case they should ever be needed. The architect for the work was Mr. Peter Matthews, of Collins-street; and the contractor Mr. George Freeman.

It is proposed to fill up the niche in the front of the Mechanics' Institution with a full-size statue of Shakspeare, chiselled out of some very choice freestone from the quarries in the Barrabool-hills. Mr. Brain, a Geelong sculptor, has undertaken the performance of the work, more for "the cause" than the profit. This artist is carving a group titled "Faith gazing on the Cross," in monumental marble, for Mr. Le Sure.

At a meeting, in October, of the Technological Commission, held in the Exhibition Building, the members present being Judge Bindon (chairman), Messrs. Rolfe, Thomas, & Blair, M.L.A.S., and Dr. Bleasdale, the chairman presented a report of his visit to the carpenters' and joiners' school for technical education. He stated that the committee of the school were progressing in

their arrangements for organising the school in an efficient manner. The school had only been opened on four nights, and there were twenty pupils present. The committee proposed that the course of education should be general, so as to [meet not only the special, but the general wants of the trade they represented. Preparatory classes were to be commenced. A class for geometry had been already formed, and classes for mechanical, architectural, figure, and other branches of drawing were about being formed, as was also a class for the making of models, &c. The committee expressed to him their desire for assistance from the Technological Commission, to enable them to purchase figures, models, and other necessary materials, and also stated their opinion that nothing would be more likely to advance industrial education than the delivery of lectures. On the motion of the chairman, the commission granted 5*l.* to the school. Mr. Rolfe then reported that he had visited the school of design at the Trades' Hall. There were 102 pupils present. 10*l.* was granted as a donation to the school, to enable them to purchase materials.

Melbourne derives a considerable part of its water-supply from a reservoir in the neighbourhood, named Yan Yean. A quick-sighted physician, who has brought the subject before the Medical Society of Victoria, has discovered that the whole drainage of a township, after creeping through a foul swamp, flows by three outlets into the main feeder of the reservoir.

The Jewish fraternity of Melbourne are about to erect almshouses for their poor, and have accepted a design for the erection of the same. Competitive designs were invited from the various architects, and about a dozen designs were sent in, when one with the motto "Charity" was accepted, the author being Mr. Geo. R. Johnson, of 46, Elizabeth-street. The design selected is in the Lombardic style of architecture. The buildings will form two sides of a quadrangle, fronting the St. Kilda-road and Union-street, with a synagogue on the angle. The whole is estimated to cost 5,000*l.* It is intended to build only a portion at present, and fence in the land, which will cost about 1,000*l.*

Beechworth.—The Post and Telegraph Office at Beechworth, situate at the corner of Camp and Ford streets, is erected in the modern Italian style of architecture, of brick, stuccoed, and on granite foundations. It contains on the ground floor, post-office, telegraph office, savings-bank, and money-order offices, postmaster's private office, battery-room, store, kitchen, and out-offices. The receiving and delivery windows are under an arcade 38 ft. in length fronting Camp-street. The clock tower, constructed of granite, has a three-faced dial. The roofing is of Bangor slate. The upper floor contains quarters for postmaster consisting of six rooms, passage, and terrace over the arcade. The whole is being erected in connexion with the Public Works Department by Mr. Nation, whose contract amounts to 3,687*l.* 10s., and was to be open to the public by the beginning of the new year. The *Illustrated Australian News* contains good engravings of this and three other new edifices on one of its recent pages.

Castlemaine.—The Castlemaine Hospital, in the Italian style of architecture, erected from designs by Mr. J. A. B. Koch, and built by Mr. Borland at a cost of 2,500*l.*, has been opened for public use. It is constructed of brick, on sandstone foundations, with granite plinth, and is approached by a double flight of granite steps. It stands on a piece of land granted by the Government, and will ultimately form the centre block when the entire structure is completed. On the ground floor is an entrance-hall, 9 ft. wide, extending from front to back, having on its right board-room, patients' waiting-room, consulting-room, and dispensary; and on its left, casualty-ward, with bath-room, lavatory, nurse-room, closet, and scullery. From the main hall a staircase leads to the upper wards. The basement, which consists of spacious dining-room and sleeping apartments for the servants, is reached by a separate staircase leading from the dispensary. All the apartments are well lighted and ventilated. The piece of land around the building affords space for recreation grounds, which are neatly laid out and ornamented with shrubs. The situation is pleasant, being at the north end of the town, facing the railway, the back garden having a frontage to Barker's Creek. The new portion has accommodation for fifty patients, and has all the latest improvements connected with hospitals.

Ballarat.—The Ballarat Water Supply Commission have decided to proceed with the erection of new offices at the corner of Grenville and Lewis Streets, opposite the new premises of the Gas Company. The building will be after a design by Mr. Bagge, the committee's engineer, and will consist of two stories, the estimated cost being something like 2,500*l.*——The foundation-stone of the new Town-hall, Ballarat, has been laid. The principal entrance to the municipal offices will be in the centre under the tower, which will stand right out to the front, so that the stone, which has just been laid, will also be the foundation-stone of the tower. This tower is to carry the Alfred memorial bells, which have already arrived at Ballarat. They have been cast by Messrs. Mears & Stainbank, of Whitechapel, as already noted in the *Builder*. The bells are valued at 1,180*l.* The present contract for the erection of the tower has been taken by Mr. William Cowland for 16,767*l.*

Books Received.

On Art Training. By JOHN G. CRACE. London: John Bumpus, Oxford-street.

UNDER this title Mr. Crace has published the address delivered by him at a meeting of Art Workmen, February 15th, to which we referred at the time. He begins with an art-workman as a lad, and shows what should and may be done for him by his parents, and what he should, and, if he please, may, do himself. We would willingly reprint half the excellent matter of which it consists, but think it better to recommend the purchase of the tract itself. We content ourselves with quoting a little story that Mr. Crace tells to show what may be done where there is a will. He is speaking of the advantages obtainable by travelling, and says,—

"And I think it quite possible for a young man who is careful to be able to do it. I knew a young fellow many years ago now, who scraped together the sum of 30*l.*, being determined to travel in Italy and see all the wonderful works of art there, and he went.

Of course he was obliged to use very strict economy.

He took conveyances now and then in the dull parts of the countries, but he mostly walked, and chose his routes through beautiful scenery as much as possible. Well, he went all over Italy, he saw Milan, Venice, Florence, Rome, Naples, Pompeii; he was three months absent. He made careful sketches of much that he saw; and, though he returned to England with only a few shillings in his pocket, he had riches in store, being wonderfully enlightened and improved by his knowledge of art.

This young man was a writer by trade; he taught *himself* to draw, and, by practice, he drew beautifully; he applied himself very diligently to work; he got on; he copied manuscript writing and illumination; he did artist work, especially in [Mediæval style. He, in time, earned his five or six hundred a year, and supported his family in comfort and respectability. Poor fellow—he died last year, loved and respected by a large number of friends, among whom I truly class myself. His name was James West.

I think it is not useless to mention this little episode to you; for many a man, by abstaining from drink and by careful economy, may save up 30*l.*, and every man can learn to draw."

Notes on Sanitary Reform. By a Sanitarian. London: Simpkin, Marshall, & Co. Bristol: Kerslake & Co. 1870.

THIS very useful contribution to the great cause of sanitary reform has been re-issued in a revised form, with the name of the author, Mr. S. Sneade Brown, of Bristol. It has been well circulated, especially in Bristol. There is a discreditable freemasonry existing in some towns to suppress all efforts to throw light upon the real state of things, and it is against this evil spirit that the shilling pamphlet under notice has been chiefly directed. It is well adapted to strengthen the hands of sanitary reformers in such cases, and so to do good.

VARIORUM.

"Street's Indian and Colonial Mercantile Directory for 1870. Street, Cornhill."—The reissue of this Directory shows that it is useful, and destined to live. To London and other merchants, traders, and to all interested in India and the colonies, it is indispensable, although, no doubt, there is much still to do in rendering it complete as a directory. The present issue is said to contain much additional information.——"The Bicycle: its Use and Action. By Charles Spencer. Warne & Co." The instructions given, and illustrated, in this little volume are, we dare say, correct, since they are given by a manufacturer of the article, who advertises his goods at the end.——Mr. J. N. Lockyer, in his third lecture on the "Sun," delivered at the Royal Institution on Saturday last, showed (according to *Nature*) an interesting experiment with a candle, which gives a good general idea of the solar phenomena as observed by his new method. As round the sun Mr. Lockyer can spectroscopically detect an ordinarily invisible hydrogen envelope which is rendered evident by bright lines only as contrasted with the nearly continuous spectrum given by the white light of the double surface of the sun, so also there is an ordinarily unnoticed envelope (of sodium vapour) round a common candle flame which gives a bright line spectrum as contrasted with the continuous spectrum of the flame itself. Mr. Lockyer also showed that some of the phenomena he has seen when watching a solar storm may be reproduced by disturbing a candle flame.——The *Food Journal* says:—"In ten years a fishing village may spring up into a town—a quiet bay become a fashionable watering-place. The increase may not be the natural growth by excess of births over deaths, but due to other causes, acting spasmodically and unforeseen. The further, therefore, we get from a census, the less reliance can we place on the figures denoting the *estimated population*, that is, the population at the preceding census, with the addition for each year that has since elapsed of the annual increase, as ascertained from an average of the preceding decade of years. It may be Utopian to hope for a more frequent enumeration of the people; but Prussia, with her triennial census, and France, with her quinquennial returns, should stimulate our exertions in this direction." Why should there not be an annual enumeration of simply the numbers and ages of the population?—— "American Society of Civil Engineers: Transactions." No. XIV. March 16, 1870. A paper on American Interoceanic Ship Canals, by Col. J. W. Adams, member of a committee on this subject, occupies the pages of the number under notice. Col. Adams advocates the Tehuantepic route in preference to any other of the twenty-six various routes for a canal across the narrow neck of Central America. The Darien route he considers to be scarcely practicable, and if so at all, it would require, for a thorough cut, a ship tunnel miles in length. The Tehuantepic route, however, would require locks; but Col. Adams states that as the tide on the Pacific side rises 18 ft. to 20 ft., while there is no such tide in the Gulf of Mexico, locks are unavoidable on any route. The society, having heard the paper, passed a resolution in favour of the Tehuantepic route as best suited for United States purposes as regards its northern position, and expressing an opinion that a survey of it should be made before the citizens should be committed to any other route.—— "Trade-unions and the Cost of Labour: Speech delivered by Thomas Brassey, jun., M.P., in the House of Commons, 7th July, 1869." London: Longmans, Green, & Co., 1870. The vast and varied experience of Mr. Brassey, sen., gives great force to anything based, as much of his son's speech was, upon that experience. Mr. Brassey, in reprinting his speech, has given additional statistical details, and inserted a few new observations on the danger to the working classes of the restrictions imposed on the free supply of labour by the dictation of ill-informed agitators. In this speech Mr. Brassey urges the injustice of condemning British labour as more costly in its results, simply because the daily rates of pay are higher in England than on the Continent; but he "condemns the errors into which our operatives are being betrayed by the ill advice of leaders who have no just claim to the influence which they unhappily possess."—— "Report to the Finance and Improvement Committee of the City Commissioners of Sewers, upon Street Tramways. By William Haywood, Engineer and Surveyor to the Commission." This report shows that the total length of street in the City at present proposed to be occupied is 3,268 yards, or about a mile and three quarters. The total length projected in the whole metropolis is 134 miles. Mr. Haywood's conclusions are that,—

"While there are undoubted advantages in street tramways, yet there are many disadvantages attending them, but there can be no doubt that they will afford much comfort and convenience to a vast number of people: on the other hand, in streets of great traffic, it will no longer be possible to maintain the pavements in a similar condition to that in which they now are; and therefore that the comfort of those who ride in or drive vehicles of another description will be more or less sacrificed to the comfort of those who ride on the tramways."

Mr. Haywood also remarks that,—

"Special consideration will be needed as to how far companies should be allowed to establish what may, in a degree, be considered a monopoly of portion of the highway; and it becomes a question, if the advantages to be

derived from the tramways are clear and undeniable, whether it should not be the duty of the Highway Boards throughout the country to form and maintain them out of the rates; and this is a fundamental question which lies at the threshold of the whole inquiry."

——"Report of the Health of Liverpool during the year 1869. By W. S. Trench, M.D., Medical Officer of Health for the Borough." (Liverpool Printing Company.) From this report it appears that in 1869 the death-rate of the borough was equal to 28·9 per 1,000, or 3 per 1,000 less than the average rate which has prevailed for the past ten years. The death-rate of the parish was equal to 31·6, and of the out-townships 25·8 per 1,000. The highest rate was found, as might be expected, in Vauxhall Ward, where it was 38·8 per 1,000. With reference to the comparative mortality in the large towns of the kingdom, Liverpool stands fourth, being less unhealthy than Glasgow, Edinburgh, and Manchester. The population per acre is higher in Liverpool than any other town in the kingdom, being 97·7 per acre. In Manchester the average is 91, in Glasgow 79, while in London it is 40·7, and in Birmingham, 46. The average age at death throughout the borough is 23 years. The deaths of infants below the fifth year of their age amounted to 7,319, or about 49·6 per cent. of the entire number of deaths, and were equal to 10·5 per cent. of the entire number of children under that age. Infant mortality is highest in Scotland and Vauxhall Wards. The number of deaths from typhus and intermittent fever was 783, which is considerably below the average for the preceding ten years, the figures for which are given at 1,050. Dr. Trench says of scarlatina that it assumed during the last six months of 1869, within the borough of Liverpool, the gravity of an epidemic. It accounted for 1,042 deaths out of 14,744, and was at the rate of 2 per 1,000. It constituted 7 per cent. of the whole deaths, and was most fatal in the third and fourth quarters of the year. Of the Workshops' Regulation Act the medical officer is constrained by further experience to express his opinion that, "however beneficent in intention, it is not only impracticable in its machinery, but inequitable in its effects."

Miscellanea.

Society for the Encouragement of the Fine Arts.—On Tuesday last there was an exhibition of a collection of drawings and paintings by Birkett Foster, Richardson, Mole, Henry Tidey, Girardot, Shalders, and other artists,—Mr. Richard Redgrave, R.A., in the chair. Mr. Henry Tidey read a paper on "Beauty and the Beautiful." He insisted that the source of all beauty (which he defined to be realism idealised) was not something apart from, but existed only in, our minds. He next adverted to the different national types of beauty—to the melancholy ideal, at one time, of Italian art—the emaciated saint; to the glorious colouring of Rubens, which was but a reflex of his own times; and to English landscape painting and portraiture, which accorded with our scenery and mode of life; and he concluded an admirable lecture with some feeling allusions to the disappointed hopes of the artist in his search after beauty, to the shortness of the moments of inspiration accorded to him, and to the impossibility of ever attaining to the ideal perfection which was the aim of his life.

Discovery of a Roman Amphitheatre in Paris.—Modern Paris covers the ground of old Lutetia, the capital of Transalpine Gaul, and it is surprising that so many centuries should have passed before this relic of the olden time has been brought to light. This Gallo-Roman amphitheatre, in which public games were held as late as the period of the Merovingian kings, occupies the eastern side of the Mons Lucotitius, now the Montagne Ste.-Geneviève. It had become gradually hidden under a thick deposit of rubbish from 7 to 8 mètres deep. About one-half of its vast oval, according to *Galignani*, is now uncovered, in the Rue Monge, on the site where, not many years ago, stood a convent of English nuns. The rows of stone seats on this side are nearly all destroyed, but the main walls, built of stone and Roman cement, without any admixture of brick, are still in good preservation. Two of the recesses in which the wild beasts used to be kept are still visible. The style of building denotes a later period than that of the Palais des Thermes. Several medals and fragments of a rich turquoise and lapis-lazuli necklace with gold clasps have been found.

The Influence of the Suez Canal on Ocean Navigation.—At a recent meeting of the Institution of Naval Architects, Mr. J. D'Aguilar Samuda, M.P., read a paper upon "The Influence of the Suez Canal upon Ocean Navigation." He said that the canal would make the following savings in distance in the voyage to England:—From Bombay, 5,570 miles; Ceylon, 3,840; from Hong Kong and Singapore, 3,520; and from Melbourne, 91 miles. This represents a saving of about half the distance between England and Bombay, about one-third the distance between England and China, and practically none between England and Australia. Manifestly, then, the canal will greatly benefit carriers. The opening of the canal had caused a great falling off in the construction of sailing ships, and it tended to the further substitution of steam for sails in carrying on our traffic with the East. Without doubt, nearly all the traffic between here and Bombay will be lost in sailing-ships; but as the lives of sailing-ships were not of long duration, he thought the present panic among owners of such ships was not fully justified. He thought that there would shortly be a great substitution of steel for iron in hulls of ships, and a general adoption of the principles of expansion in engines. A report presented by M. de Lesseps to the meeting of Suez Canal shareholders at Paris, we may here add, states that the total number of vessels that passed through the canal from the day of its opening to the 15th of March was 209, representing 146,631 tons; and of these 56,052 tons were English vessels, 34,390 French, 17,666 Egyptian, 14,625 Austrian, 7,386 Italian, 4,178 Russian, 4,000 Norwegian, 3,200 Dutch, 880 German, 528 Spanish, 3,015 Prussian, 869 Portuguese, and 342 Turkish. Of the 209 vessels 200 were steamers, the others were sailing vessels. With respect to England, the report says, "England has from the first day been able to utilise the canal largely. You have seen what an imposing commercial fleet she has sent to it, and that fleet augments every day. Building yards work literally night and day in the United Kingdom in transforming or building vessels. We could cite to you a single company which, in its calculations, has put down an annual payment of 100,000*l.* for the canal."

Sunday Water Supply.—The want of a supply of water on Sundays, in the metropolis, has long been a grievance, as old readers of the *Builder* must well know, from our frequent endeavours to obtain a remedy for that grievance, which, however, still exists, though not to such an extent as formerly. We are glad to notice that leave has been given to Mr. Stapleton to bring a Bill before the Legislature requiring the metropolitan water companies to supply water for domestic purposes on Sundays. The West Middlesex Water Company has already begun to give a Sunday supply; the Chelsea Company has promised to give a half supply; the Grand Junction Company supplies a considerable quantity of water; and the New River Company supplies 57,000 houses on Sunday. The East London Company has always been ready to furnish a Sunday supply when needed in times of epidemic, upon which Mr. Stapleton very properly remarks:—"By giving a Sunday supply in times of epidemic, the company admitted its necessity; and by withdrawing it at the end of one outbreak of epidemic disease they had laid the foundation of another." The Southwark and Vauxhall Company supply on Sunday the whole of their metropolitan but not their suburban district; and the Lambeth Company has followed the course of the New River and Grand Junction Companies; while the Kent Company, which supplies Greenwich and Woolwich, "made the objection that a great part of their district was not in the metropolis."

Institution of Surveyors.—At the ordinary general meeting held on Monday, April 4th, the discussion on the paper by Mr. J. Mathews, entitled "A Plea for Culture in the Profession of a Surveyor," then ensued; and a vote of thanks was accorded to Mr. Mathews. The next meeting will be held on Monday evening, April 25th, when a paper will be read by Mr. E. Ryde, in continuation of his paper of last session, entitled "Parochial Assessments." Answers to the Questions on Agricultural Customs are needed for the following counties, and the council appeal to members and their friends to supply the information necessary to complete the returns, viz.;—Westmoreland, Lancaster, Northampton, Leicester, Berks, Essex, Kent, Dorset, Rutland, and Worcester.

Raising the Euston Station Roof.—Five bays, or 100 ft. in length, that is the distance included between six columns, and 145 ft. in width—the whole width of the station—are raised at once in the following manner, according to the *North Londoner*:—The columns are first detached from the ground, and a platform of wood, 3 ft. or 4 ft. square and as many inches thick, is placed on each side of them, and cut and wedged up so as to overcome all inequalities, and present a perfectly smooth upper surface. On each platform so prepared is placed a screw-jack—a strong iron frame on a very wide base—containing an immensely powerful steel screw, 3 ft. 2 in. long, worked upwards by means of levers, which enter horizontal holes in the head. This head has a pivot at the top, on which turns a cast-iron socket, 9 in. or 10 in. square, made to receive the ends of massive timbers that go to the whole height of the column into similar iron sockets in the underside of a sort of iron box made to bolt like a mould round both the cap of the column and the bottoms of the two iron girders carried by it. In some cases the timbers, which are two separate pieces bolted together, do not enter sockets at the top, but are cut to fit outside the iron girders, and screwed together; and as the soft wood yields readily to any inequality in the iron, a firmer and more vice-like hold is obtained by this than by the former method. In addition to this, strong beams are screwed together and arranged according to scientific principles, so as to make the part that is to be moved one solid mass, and to prevent the slightest possibility of its tilting over in any direction; and so skilfully has the disposition of these numerous supports and ties, been managed, that there is not the slightest obstruction to the traffic. Everything is stowed away up in the air amongst the iron rods of the roof, except a few scaffolding poles, that get into nobody's way if nobody gets into theirs. The segment to be moved is severed from the rest, the boarding and slates of the roof taken up, and the glass of the sky-light taken out at the joint, and all is ready for the great operation of lifting to begin.

The Rotundity of the Earth.—A stupid attempt has been made for some years past to induce the belief that the earth is a flat surface, and a Mr. Hampden, who seems to have been persuaded that it is so, has rashly risked 500*l.* on the issue of an experiment on the Bedford Level in order to test the truth of the assertion. His offer was taken up by Mr. A. R. Wallace, and arrangements satisfactory to Mr. Hampden having been made, the experiment was tried by means of three discs, rising 12 ft. above the level of the surface of a piece of water large enough to show the curvature, if there were any. The referee has just decided against Mr. Hampden, the central disc, as every one with a grain of sense supposed it would, rising considerably above the line formed by the two outer discs, as seen from one end through a selected and approved telescope. The curvature to and fro in six miles to the extent of about 5 ft. was proved. As was also to be suspected, an attempt is being made to shuffle out of the bet, now that it has been decided.

Civil Service Estimates.—The Civil Service Estimates have been issued. The total is 16,416,265*l.*, against 16,316,388*l.* last year, showing a net increase of 99,877*l.* On public works and buildings there is a net decrease of 70,173*l.*; on salaries and expenses a net decrease of 30,671*l.*; on law and justice a net increase of 138,592*l.* The department of education, science, and art shows a net increase of 88,916*l.* Under this head the cost of public education is shown to be 914,721*l.*, against 840,711*l.* last year.

Guildhall, London.—At the last Court of Common Council an offer from some of the principal inhabitants of the ward of Farringdon Without, to put a stained glass window in the Guildhall, in commemoration of the great improvements which have recently been carried out in that ward by the corporation, at an expense of 3,500,000*l.*, was accepted by the court, and it was referred to the City Lands Committee to give the necessary directions.

Interesting Discovery at Newcastle.—The workmen engaged in the excavations near the Black Gate, Newcastle, have discovered a curious subterranean passage, at a depth of about 12 ft. from the surface. The passage extends underneath the ancient gateway, and is, like the basement of that ancient building, in an excellent state of preservation.

Rome.—A correspondent writes,—The British Archæological Society of Rome continues its work steadily, and visitors to Rome now hear a great deal more about the antiquities than they ever did before. The society has stirred up others to emulation with them, and has given great activity to the study of the antiquities of Rome. The weekly lectures are always well attended, and give a good deal of useful and interesting information, not easily obtained elsewhere. Mr. Shakspere Wood, the secretary, is indefatigable in giving lectures on the spot, sometimes three times over. But there are always two sides of every question, and I hear that the society consists almost entirely of the strangers who flock to Rome, and that the older residents in Rome generally hold aloof from it; that even the members of the committee, who are the managing body, are sometimes strangers, who hardly know the names of the places they go to see. I hear little of Mr. Parker's excavations this season, and I am told that this arises from his finding difficulties put in his way by the Government authorities at the instigation of the local antiquaries,—that they have not renewed his permissions which they had given last year. It is against the law in Rome for any one to dig more than 6 ft. deep without permission from the government, and any labourer found doing so is liable to be sent to prison at once by the police without any form of trial. Mr. Parker has, however, continued to go on exploring the remains of the old Mamertine prison, and has found three doorways under the level of the ground in the cellars, and therefore at a great depth below the surface. All the walls and doorways are made of the large square or oblong blocks of tufa, the same as the walls of Servius Tullius.

Worcester Cathedral Clock and Bells.—The Rev. R. Catley, minor canon of Worcester, writes to the local papers saying that the bells are already pronounced by competent judges to be of surpassing excellence, and that the clock has been for some time ready for erection, and as the internal restoration of the tower rapidly approaches completion, it will soon be placed in its proper position. He gives the following estimate of the total cost:—

Bells, oak frame, and all necessary fittings complete	£2,677	0	0
Clock, about	500	0	0
Timber trussing, floors, &c., about...	1,200	0	0
Architect's commission, about	70	0	0
Gasfittings	12	0	0
Chiming apparatus	20	0	0
Wire for tower windows, about	35	0	0
Incidental expenses, including taking down old bells, printing, advertising, &c., about	200	0	0
	£4,714	0	0
Amount already promised	£3,806	0	0
Leaving a balance yet to be provided of	908	0	0

An appeal is made for further contributions, to be sent to any of the Worcester banks.

Sewage Farming.—A paper on this subject has been read by Mr. Bailey Denton to the members of the Farmers' Club, and appears at some length in their *Journal*. The title of the paper was, "On Sewage Farming, and the Position of Sewer Authorities in relation to Lands to which Sewage is applied." There was a very full attendance. Mr. Denton, in the outset of his paper, said that his object was not so much to pronounce opinions of his own as to elicit the views of others; and, considering the highly practical character of his fellow-members of the club, he would avoid dwelling on those general agricultural laws which rule in sewage as in ordinary farming, and address himself at once to the particular objects of his paper, which, as a new branch of farming, demanded special treatment. An interesting discussion followed the reading of the paper, in which a variety of opinions were expressed.

The Late Mr. George Leather, C.E.—The remains of this gentleman have been interred in the Burmantofts Cemetery, Leeds. In early life Mr. Leather enjoyed considerable reputation as an engineer. He was concerned in the improvements of the Aire and Calder navigation, by which it was made available for sea-going vessels to Leeds and Wakefield, and also in the like improvements of the River Dun navigation to Sheffield. The various bridges which have been erected over the Aire in Leeds within the last forty years were also designed and executed by Mr. Leather, either solely or in conjunction with his son.

The New Public Buildings.—In the House of Lords last week Lord Redesdale said that he had looked at the designs of the new public buildings, but he was disappointed to find that there was no block plan to show the disposal of the buildings when erected. He wished to know whether there was any objection to the preparation of such a plan; also whether a connexion could be made between the new buildings and the Privy Council offices. He drew attention to the fact that a house in Spring-gardens was lately taken possession of by a banking company, and that a large palatial building was about to be erected on its site. This house might have been purchased some time ago at a low figure, and by means of its clearance a fine entrance into the mall might have been secured. Earl Granville said, in reply, that he would make inquiries into the matter.

The Boutet Bridge.—According to the *Moniteur*, the model of a single span, of 80 mètres, is now nearly completed. The two abutments, formed of blocks of granite, the tress and platform are set up for a length of 80 mètres (the ground where the model is provisionally installed, at the "Depôt des Marbres," not allowing of the whole length of 100 mètres being extended). The tress was tried on different occasions, and resisted, without the slightest deflection, a strain double that of the trial weight required by the rules of "The Ponts et Chaussées;" lastly, the "longrines," or rafters, are ready to be mounted. The model is intended to prove the efficacy of the Boutet system for the construction of a great bridge over the Channel.

A Benedictine Monastery in Wales for Father Ignatius.—The foundation-stone of a new monastery has been laid by Father Ignatius and his monks among the Black Mountains in Monmouthshire, in the Valley of Ewyas, near Llanthony. A spectator thus describes the site:

"We were standing about 300 ft. above the gliding river Honddu, on the slope of the western hill, with a full view of the magnificent valley of Ewyas to the south, and the grand towering Black Mountains on either side. On the north, a bold and beautiful round-shaped mountain stood out alone, separating two most lovely valleys, which swept past it to the right and left. All was silent, solemn, beautiful, and still. A narrow ravine, verdant with ferns and bushes, through which rushed a mountain stream, formed the south-eastern limit of the site marked out for the new abbey. The level for the foundation of the west cloister was already nearly finished. The foundation-stone was ready for the ceremony, being placed at the base of the first buttress of the west cloister."

"Scholars' International Exhibition."—The *Kensington News* says,—A further novelty is in the course of introduction in Kensington, at the Allen-street Schools, in the form of a Scholars' Industrial Exhibition. The exhibition will comprise various specimens of ornamental and decorative art, results of applied science and skill in handicraft, with a large admixture of the more humble specimens of the arts practised in domestic life by the girls and young women connected with this institution. Mr. S. H. Trotman is the manager.

New Synagogues.—The new Central Synagogue, in Great Portland-street, which we illustrated on page 887 of our volume for 1869, has now been consecrated by the Chief Rabbi. The opening of the new Synagogue for Rochester and Chatham, built and endowed by Mr. Simon Magnus, a merchant of Chatham, is postponed indefinitely, as Mr. Magnus insists on having at the consecration, and taking part in it, Professor Marks, who belongs to the "reformed" party amongst the Jewish community, and to this the Chief Rabbi and others object.

Billingsgate.—A correspondent suggests a plan for the enlargement of Billingsgate Market, by means of a floating covered way, to extend the entire length of the Custom House Quay, and of sufficient width to give an addition of four times the space of the existing market, with which it is proposed to connect it on the river-side, so as in no way to obstruct the navigation. The structure to be of a suitably ornamental character.

TENDERS.

For the erection of a villa residence, Crouch-hill, Hornsey, for Mr. W. R. Perry. Mr. Alfred W. N. Burder, architect. Quantities not supplied:—

Timewell	£2,024	0	0
Wood	1,900	0	0
Dove	1,894	0	0
Williams & Son	1,867	0	0
Roberts	1,860	0	0
Carter & Sons (accepted)	1,840	0	0

For making 17,400 superficial yards of roads, &c., at Stoke Park, near Bristol. Mr. Henry Masters, architect:—

Adams & Kirby	£2,800	0	0
Pilditch & Sons	2,207	16	2
Price	1,992	2	6
Rogers	1,896	13	0
Storkey	1,824	0	0
Mullett*	1,735	0	0
Merewether & Sons	1,630	0	0
Davis	1,541	3	0
Baker (accepted)	1,521	0	0
Sidwell*	1,504	10	3

* Informal.

For enlarging and restoring Starston Church, Norfolk, exclusive of the old materials. Mr. R. M. Phipson, architect:—

Grimwood (accepted)	£725	0	0

For alterations and additions to The Grove, Yoxford. Mr. R. M. Phipson, architect:—

Mountain & Cotton	£1,339	0	0
Grimwood	1,246	11	0
Smyth & Sons (accepted)	899	17	6

For rebuilding part of Writtle Mills, Chelmsford, for Messrs. W. & J. Beach & Sons. Mr. Elkington, architect:—

Little	£2,499	0	0
Roper	2,368	0	0
Wells	2,293	0	0
Gardner	2,158	0	0
Brown	2,060	0	0
Saunders	1,960	0	0
Sudbury (accepted)	1,940	12	0

For detached villa residence at Turnham Green, for Mr. W. H. Thomas. Mr. C. Sewell, architect. Quantities provided:—

Scott	£1,880	0	0
Wilson	1,826	10	0
Westcomb	1,826	0	0
Wright	1,787	0	0
Flaxman	1,755	0	0
Adamson & Son	1,737	0	0
Wigmore	1,699	10	0
Fisher	1,684	10	0
Cowland	1,665	0	0
Perry Bros.	1,617	0	0
Heaver & Coates	1,597	0	0
Whittick	1,250	0	0

For rebuilding the Old White Horse Tavern, Brixton, Surrey, for Mr. H. J. Reeve. Mr. C. Sewell, architect. Quantities provided:—

Scott	£2,837	0	0
Hoare & Posselthwaite	2,630	0	0
Staines & Son	2,398	0	0
Cooper	2,350	0	0
Smith	2,339	0	0
Heaver & Coates	2,297	0	0
Perry Bros.	2,247	0	0
Jackson (accepted)	2,080	0	0
Rowe & Verran	2,037	0	0

For the erection of the West London District Schools, at Ashford, Middlesex. Mr. H. H. Collins, architect. Quantities supplied by Messrs. Batstone & Hunt and Mr. Gritten:—

Merritt & Ashby	£57,965	0	0
Brass	55,990	0	0
Newman & Mann	54,728	0	0
Crockett	52,300	0	0
Jackson & Shaw	52,300	0	0
Tongue	52,250	0	0
Nutt & Co.	52,000	0	0
Myers & Sons	51,961	0	0
Crabb & Vaughan	51,600	0	0
Capps & Ritso	51,126	0	0
Hart	50,500	0	0
Gibson Bros.	49,908	0	0
Perry & Co.	49,770	0	0
Henshaw	49,350	0	0
Howard	48,969	0	0
Ebbs & Sons	48,866	0	0
Hill, Keddell, & Waldram	48,590	0	0
Kilby	48,435	0	0
Marwick & Thurgood	47,479	0	0
Kirk	46,994	0	0
Harris	46,500	0	0
Fergusson	44,670	0	0
Kelly Bros.	43,600	0	0
Bull & Sons (accepted)	43,590	0	0

For the erection of seventeen houses, Birkland-avenue, Peel-street, Nottingham, for Mr. George Abbott. Mr. J. Collyer, architect. Quantities supplied:—

Curtis (accepted)	£3,696	0	0

For extension to factory, Sherwood-street, Nottingham, for Mr. John Farmer. Mr. J. Collyer, architect. Quantities supplied:—

Vickers	£720	0	0
Bell & Son	698	0	0
Shepperson	672	0	0
Curtis	670	0	0
Jelley (accepted)	633	0	0

For the erection of a teacher's residence, attached to Oakley National School, Bishop's Stortford. Mr. Alfred W. N. Burder, architect. Quantities not supplied:—

	Residence.			Repairs to School Buildings.		
Glasscock	£232	10	0	£7	10	0
Brown (accepted)	205	10	0	9	10	0

For two pairs of semi-detached villa residences in Hornsey-lane. Mr. J. W. Reed, architect:—

Williams	£6,080	0	0
Eaton & Chapman	5,990	0	0
Parsons	5,767	0	0
Hawkes	5,760	0	0
Hyde	5,705	0	0
Winship	5,645	0	0
Sale	5,545	0	0
Carter & Sons	5,237	0	0

For the erection of a house at Wetheral, Cumberland, for Mr. John Scott. Messrs. Henry Jarvis & Son, architects:—

Milburn	£3,168 9 0
Court	3,135 10 0
Armstrong	3,059 0 0
Black	2,835 0 0
Nelson & Cockburn	2,813 0 0

For a Working Men's Art, Industrial, and General Exhibition building, Hull, Yorkshire. Mr. E. G. Smith, architect. Quantities supplied by Mr. G. W. Banwell:—

		Allowance for taking back old Materials.
Marshall	£2,750 0 0	£400 0 0
Fewster	2,736 0 0	500 0 0
Skinner	2,454 0 0	790 0 0
Habbershaw	2,267 0 0	450 0 0
Jackson	2,255 0 0	—
Hutchinson	2,252 0 0	530 0 0
Bray & Dixon	2,194 0 0	500 0 0
Hall	2,149 0 0	—
,, (amended)	1,945 0 0	—
Bowers	2,030 0 0	—
W. & J. Hall*	1,990 0 0	550 0 0

* Accepted.

For the erection of additions, &c., and alterations to the Farnham and Hartley Wintney District Schools. Mr. Edmund Woodthorpe, architect. Quantities supplied by Messrs. Welch & Atkinson:—

Hill, Keddell, & Waldram	£4,225 0 0
Brinton & Bone	4,100 0 0
Cooper & Co.	4,080 0 0
Martin, Wells, & Co.	3,993 0 0
Nightingale	3,823 0 0
Bull & Son	3,783 0 0
Perry Brothers	3,747 0 0
Strodley & Kemp	3,700 0 0
Bowker	3,679 0 0
Harris, jun.	3,621 16 4
Goddard & Son	3,595 0 0
Birch (accepted)	3,480 0 0
Duke	3,200 0 0

For restoration of Worle Church, Somerset. Mr. John Norton, architect:—

Young	£1,620 0 0
Date	1,600 0 0
Hughes	1,580 0 0
Wilkins & Son	1,400 0 0
King	1,393 0 0
Stephens	1,344 0 0
Beaven & Sons	1,324 0 0
Hunt	1,310 0 0
Newton	1,262 0 0
Gorvett	1,240 0 0
Wall & Hook	1,230 0 0
Diment	1,135 0 0
Bennett	1,124 0 0
Bale	875 0 0

For alterations and additions, at the African Chief public-house, Ossulston-street, Somers Town, for Mr. Deakin. Mr. Saville, architect:—

Patrick & Son	£1,467 0 0
Scrivener & White	1,386 0 0
Jackson & Shaw	1,177 0 0
Gill	1,119 0 0
Falkner (accepted)	1,087 0 0

For rebuilding the Nelson public-house, Trafalgar-street, Walworth, for Mr. P. Flanders. Mr. H. Jackson, architect:—

Scadden	£1,347 0 0
Cooper	1,185 0 0
Evans	1,098 0 0
Shackbell	1,070 0 0
Falkner (accepted)	996 0 0

For building house and dairy, Meadow-row, New Kent-road, for Mrs. White:—

Falkner (accepted)	£370 0 0

For the new infirmary at the Union Workhouse, Biggleswade, Bedfordshire. Mr. J. T. Wing, architect:—

Adams	£2,725 0 0
Thompson	2,140 0 0
Taylor	2,129 0 0
Eaton & Chapman	1,930 0 0
Chappell	1,895 0 0
Nightingale	1,855 0 0
Claridge	1,735 0 0
Field	1,677 0 0
Winn & Foster	1,630 0 0
Foster	1,577 0 0
Hobson & Taylor	1,597 0 0
Smart Brothers	1,597 0 0
Hinton & Young	1,570 0 0
Crabb & Vaughan	1,563 0 0
Osborne	1,527 0 0
Twelvetrees (accepted)	1,430 0 0
Freshwater	1,405 0 0

For iron girders, palisading, &c., for the Headingham Highway Board. Mr. E. R. Boulter, district surveyor:—

Smith & Wood	£108 5 0
Woolfield	80 0 0
Hunt	70 0 0
Huggins & Atterton (accepted)	65 10 0
Jukes, Colson, & Co.*	45 0 0

* Exclusive of fixing.

TO CORRESPONDENTS.

H. M.—H. S.—C. V.—J. W.—P. R.—C. C.—W. N.—C. S.—W. T.—J. R.—E. H. jun.—S. W.—C. C. H.—F. R.—A. H—G. R.—A. E.—B. W. E.—A. W. S.—R. R.—J. H. S.—C. F.—E. B.—M.—F. J. M.—E. C.—E. W.—J. N.—Chips (Waterhouse; and Salomon).—J. W. (send the notes).—A Constant Reader (we would not trust it under such circumstances).—Westward Ho! (next week).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of Tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

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GAS WORKS MANAGER.—WANTED, a WORKING MANAGER of the Walsall Gas Works, to enter upon the situation on the 1st July next. Salary, 200l. a year with a house at the Works (in which the Manager will be required to reside), free from rent and rates; coal, gas, and water also free. The appointment will be subject to three months' notice on either side. There are two clerks in the office besides a master-taker and collector. Applications and testimonials are to be sent to the undersigned on or before THURSDAY, APRIL 28th. Any candidate canvassing the Commissioners will be disqualified. Any further information may be obtained from the undersigned.
SAML. WILKINSON, Commissioners' Clerk.
Bridge-street, Walsall, 2nd April, 1870.

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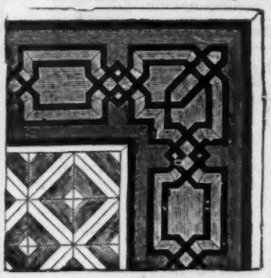

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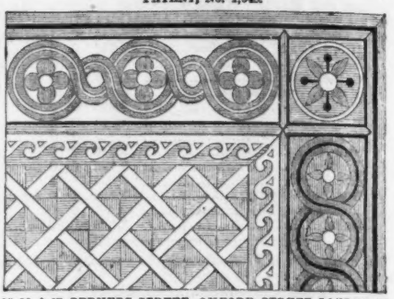

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